STATE OF MINNESOTA DISTRICT COURT
COUNTY OF RAMSEY SECOND JUDICIAL DISTRICT
- -
The State of Minnesota,
by Hubert H. Humphrey, III,
its attorney general,
and
Blue Cross and Blue Shield
of Minnesota,
Plaintiffs,
vs. File No. C1-94-8565
Philip Morris, Incorporated, R.J.
Reynolds Tobacco Company, Brown &
Williamson Tobacco Corporation,
B.A.T. Industries P.L.C., Lorillard
Tobacco Company, The American
Tobacco Company, Liggett Group, Inc.,
The Council for Tobacco Research-U.S.A.,
Inc., and The Tobacco Institute, Inc.,
Defendants.
- -

DEPOSITION OF BRIAN P. McCALL, Ph.D.
TUESDAY, APRIL 14, 1998
VOLUME III, PAGES 315 - 508

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(The following is the Deposition of BRIAN P. McCALL, Ph.D., taken pursuant to notice, at the offices of Robins, Kaplan, Miller & Ciresi, LLP, 2800 LaSalle Plaza, 800 LaSalle Avenue, Minneapolis, Minnesota, on April 14, 1998 commencing at approximately 9:00 o'clock a.m.)

APPEARANCES:

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I N D E X

Brian P. McCall, Ph.D.
Adverse Examination by Mr. Hamlin 4 - 506

P L A N T I F F S '
D E P O S I T I O N E X H I B I T S

4876 - Supplemental Expert Report 331
4877 - March/April, 1998 Public Health Report 498

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PROCEEDINGS

(Witness previously sworn.)

BRIAN P. McCALL, Ph.D.

called as a witness, being first duly sworn, was examined and testified as follows:

ADVERSE EXAMINATION (Cont'd)

BY MR. HAMLIN:

Q. Good morning, Dr. McCall, how are you?

A. Good morning. Good.

Q. This is the continuation of your deposition in this matter. You understand you are still under oath?

A. Yes.

Q. Let me just go over a couple of instructions so that we can get a clear record. If you don't understand a question that I've asked, let me know and I'll try and rephrase it so you can understand it; is that agreeable?

A. Yes.

Q. It's important for you to wait until I finish asking my question before you begin your answer because the court reporter can't pick up two people speaking at the same time; is that also agreeable?

A. Yes.

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Q. Finally, if you could make your answers words because the court reporter can't pick up a nod of the head; that would also make for a clear record; is that also agreeable?
A. Yes.
Q. Dr. McCall, have you reviewed the trial testimony of any of the witnesses who have testified in this matter in court?
A. Yes.
Q. Who?
A. I read through the testimony of Dr. Wyant, Dr. Zeger and Dr. Samet.
Q. Since the time of your last deposition on October 16 and 17, 1997 have you consulted with an epidemiologist about this case?
A. No.
Q. Since the time of your last deposition, have you consulted with a health economist about this case?
A. No.
Q. Since the time of your last deposition have you consulted with any medical doctor about this case?
A. No.
Q. Have you ever consulted with any medical doctors about this case?
A. No.

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Q. Since the time of your last deposition have you read or reviewed any of the Surgeon General's reports on smoking and health?
A. I have looked briefly at some of the reports; the '89 report I believe.
Q. And what were you looking at in the '89 report?
A. As I recall, I was just looking at some of the tables on incidence I believe. It was a long time ago; so I don't remember exactly.
Q. What were you looking at in the 1990 report?
A. I think similar types of tables.
Q. When you say "incidence," what do you mean?
A. Just looking at some other tables regarding their findings on, I believe, increased incidence for certain types of diseases.
Q. Did that review change or affect your opinions in any way?
A. No.
Q. Since the time of your last deposition have you reviewed any literature on the health care costs of smoking?
A. Yes.
Q. What have you reviewed?
A. I read through the Manning book fairly carefully. I read articles by Lee and Schwab,

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something like that. I read a fair number of articles having to do with the effects of smoking on medical costs, Hodgson, Bryce. I'm trying to remember them all. Milliman reports. There were several. Those are all I can remember.
Q. Do you remember the title the Lee and Schwab article?
A. I don't remember the exact title, but it had to do with a lifetime approach to medical expenses.
Q. Where was that article published?
A. I don't exactly remember. It's been a couple months since I've read it, but I know it was in a medical journal of some sort.
Q. Since the time of your last deposition, have you reviewed the Medicaid claims statement?
A. No, I haven't looked at it specifically in terms of going into the actual data base.
Q. Since the time of your last deposition, have you reviewed the Blue Cross Blue Shield claims data?
A. Not directly again.
Q. Have you -- strike that. Again, since your last deposition, have you reviewed any information which describes the Medicaid program?
A. I've reviewed some documentation. I don't know if it's described in the program, but it has to do

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with certain rules on recovery.
Q. Can you elaborate a bit?
A. Yeah. Minnesota rules. I think it's 9505, Chapter 9505 Section 2220, having to do with recovery with Medicaid for expenditures, and it outlines the statistical procedures that should be followed.
Q. And for what purpose did you review this rule?
A. Just as looking at issues of confidence levels and what the state uses as a confidence level.
Q. What does the state use as a confidence level?
A. Well, the law has a couple of parts, and one part it says that a 95 percent confidence interval should be used, and in the second part it says that a sufficient sample should be used, such that you're not -- well, I guess this is part of the same, but 95 percent confident that the true value lies within plus or minus 5 percent of your estimate.
Q. Now, was this rule furnished to you by counsel?
A. Yes.
Q. Do you know whether these are rules of the State Department of Public Welfare?
A. These are rules for the State of Minnesota, which I believe would cover -- I believe covers all health programs; at least that's what I recall.
Q. So these weren't federal rules?

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A. No.
Q. Have you reviewed any other information describing or referencing the Medicaid program?
A. Well, again, the documents I reviewed were -- I reviewed I remember some letters back and forth from the Department of Human Services I believe. State of Minnesota back to the Health Care Financing Administration on issues regarding overpayment, so --
Q. When did you review these?
A. Those before I went to California, so it must have been at least two weeks ago, maybe three weeks ago.
Q. What are the substance of these letters?
A. Well, those letters are that -- that HCFA based on a random sample said that Minnesota had overcharged for Medicaid payments, I believe, and that was the original letter. But then in the response letters from somebody in the State of Minnesota, they claim that the sample was unreliable due to what ultimately resulted in the large confidence interval or large relative error, if you want to call it that, and therefore that they should do further sampling; either increase their sample size or do a new study to reduce the unreliability of their estimate.

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Q. Do you know the approximate dates of these letters?
A. Well, I guess -- well, I'll go through them all. I know that the state law was 1997. The letters I believe covered the period late eighties, early nineties, somewhere in that frame; at least the ones that I saw and actually remember the dates.
The overcharge periods were somewhere in the late eighties and early nineties, and then the back and forth occurred over time a little after that. But I don't remember the exact periods of coverage that they were talking about, but somewhere in the late eighties and nineties.
Q. And do you plan to rely on these letters to support any of your opinions in this case?
A. In I guess it would be -- in testimony? Is that what -- I don't know. I don't know what questions I'll be asked in testimony.
Q. You have submitted two expert reports in this case, right?
A. Yes.
Q. And those expert reports contain your opinions?
A. Yes.
Q. Do these letters in any way relate to any of the opinions in those expert reports?

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A. Yes.
Q. How do they relate?
A. Well, I think in the expert report I stated that it's conventional to use a 95 percent confidence interval, and this is just an example of -- for example, the State of Minnesota uses a 95 percent confidence interval.
Q. What do they use the 95 percent confidence interval for?
A. For recovery of I guess -- I don't know if it would be called Medicaid fraud, but issues dealing with mispayment of Medicaid claims; something that had to do with where they paid more than they had to, I believe, either due to fraud or miscalculations or whatever.
Q. Since your last deposition have you reviewed any other documents in connection with your work in this case?
A. I reviewed a lot of documents. I'm trying to remember them all. I think briefly -- I haven't read through them, but I remember looking at parts of -- I got I think not expert testimony, but some of the opening statements; I looked at just parts of that.
I actually looked at where they mentioned me or referred to work that I did, but I didn't certainly

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read through them. There may have been other papers, but at this moment, I can't really recall any particular papers off the top of my head. Other than since my last deposition? Yeah, other than the supplemental reports that the plaintiffs provided, yes.
Q. Since your last deposition, have you consulted with Dr. Rubin?
A. No.
Q. Have you had any communications with Dr. Wecker?
A. No.
Q. Have you had any communications with any other expert in this case for the defendants?
A. Nothing -- I may have spoken here and there to Dennis Ahlburg, but other than that I have not.
Q. You have not?
A. No.
Q. Since the last deposition the Court has issued a number of orders that may relate to damages in this case. I want to ask you a couple of questions about these orders. Are you aware that the Court issued an order on January 24th, 1998 regarding the use of premature death as an offset to damages in this matter?
A. I'm vaguely aware. I have not looked at the

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order.
Q. You have not received a copy of that order?
A. I don't think so. If I have, I certainly haven't looked at it, but I don't think I've got a copy.
Q. Has the significance of that order been explained to you?
MR. GARNICK: I'm going to object on the grounds of confidentiality to the extent that the question asks about conversations with lawyers dealing with legal strategy.
MR. HAMLIN: I'm only asking him whether it was explained. I'm not asking at this point what the substance was.
THE WITNESS: I believe there was some discussions of that order.
BY MR. HAMLIN:
Q. Do you have an understanding of that order?
A. With respect to what?
Q. What it means.
A. With -- not necessarily, no. I mean, not -- I'm not able to make any sort of legal interpretation.
Q. I'm not asking you for a legal interpretation; I'm asking if you have any understanding of that order.
A. Not in particular. I mean, I kind of vaguely

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know what it talked about in terms of this, as you would call, death credit or whatever.
Q. And what is your understanding?
A. There was some ruling about it that it could not -- as you just said, it could not be used as some sort of offset. That's about the only thing that I understand.
Q. Have you gone back to your expert reports to determine which calculations the order may apply to?
A. Not specifically, no. I haven't gone through and said, "This is okay. This is not," no.
Q. Do you plan to?
A. I'm not sure. I don't plan to do that specifically, no.
Q. The Court also issued an order on January 26th, 1997 -- strike that. January 26th, 1998 which related to the indivisible injury measure of damages. Has that order been shown to you?
A. Individual?
Q. Indivisible injury measure.
A. I have not seen that order, no.
Q. Has counsel explained to you the significance of that order?
A. They may have mentioned it once or twice, but I don't really recall too much about it.

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Q. Do you have any understanding of that order?
A. I think that revolves around issues having to do with the date of the alleged conduct or something like that.
Q. But you have not specifically reviewed that order?
A. No, I don't remember ever seeing it.
Q. Have you gone back to review your expert reports to see whether or not your expert reports comply with that order?
A. No.
Q. On February 19th, 1998 the Court issued another order which stated in part that the indivisible injury rule does not require plaintiffs to show damages are clearly distinct. Has that order been shown to you?
A. The order hasn't, but I've -- I guess the last two things -- orders you've talked about in my view are the same thing, but I have very little -- I have not looked at the order and have not really discussed it.
Q. So you have not seen the order itself?
A. No.
Q. Have you had a discussion with counsel about the order?

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A. Well, probably it was mentioned at the same time the January order was mentioned since I thought the two were the same.
Q. Do you have an understanding of the February 19th, 1998 order?
A. Well, both of those orders I believe related to having to do with when the alleged conduct began, or have something to do with that.
Q. Have you gone back and reviewed your expert reports in light of the February 19th, 1998 order to see whether your expert reports comply with that order?
A. No.
Q. Are you aware that the defendants asked the Court for leave to submit two new models allegedly disaggregating damages in this matter?
A. I am aware of an additional report by one of the experts. I don't recall how they asked permission, but I know that I remember seeing that report by Wecker, supplement to the supplement, or whatever you call it.
Q. So you have reviewed that second supplemental report of Dr. Wecker?
A. I looked over it briefly. I didn't study it in any detail.

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Q. Did you see any of the electronic data that underlies that report?
A. No.
Q. And you've not discussed that report with Dr. Wecker?
A. I don't think I've ever talked to Dr. Wecker.
Q. Are you aware that the Court denied the defendants' motion for leave to file that second supplemental report on April 1, 1998?
A. I believe that was mentioned, yes.
MR. HAMLIN: Let's mark this.
(Plaintiffs' Deposition Exhibit No. 4876 marked for identification.)
BY MR. HAMLIN:
Q. Dr. McCall, let me show you what's been marked as Trial Exhibit 4876 which is a copy of your supplemental expert report dated January 13th, 1998, correct?
A. Yes.
Q. Did you prepare this expert report?
A. Yes, I did.
Q. Did you prepare the first draft?
A. Yes, I did.
Q. Did you submit that draft to counsel?
A. I believe I sent -- well, depending on how you

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define the first draft. I've sent drafts to counsel. I don't recall if it was what I would consider the first draft or if I had revised it myself a few times.
Q. How many drafts did you send?
A. One or two. I don't recall. Maybe three, but not very many.
Q. And did counsel comment on the drafts?
A. Yes, they made some comments.
Q. And as a result of those comments did you make changes to the report?
A. As I recall, I made a couple of changes, but they were very minor comments.
Q. Did you save those drafts?
A. No.
Q. Did you save any drafts from your first report?
A. No.
Q. Did you generate any electronic data in support of this report?
A. Yes.
Q. Have you supplied that to counsel?
A. Yes.
Q. Did you generate any paper memos in support of this report or in connection with the preparation of the report?

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A. I may have. I don't recall if I did. I don't have them any more.
Q. So if you had them, you discarded them?
A. Yes.
Q. Now, I take it that your opinions in this case are contained in your first report, and in your supplemental expert report, correct?
A. Yes.
Q. Do you have opinions in this case that are not contained in either of these reports?
A. I don't believe so, but --
Q. Let me ask you this: We recently received some electronic data from you regarding a nursing home analysis.
A. Right, right. Yeah. I forgot about that.
Q. But that analysis is not in either one of your written reports?
A. Right. Correct.
Q. When did you perform this analyses?
A. A few weeks ago. After, I believe, reading Wyant's testimony.
Q. And did you perform this analysis at counsel's direction?
A. I believe not.
Q. This is just something you did on your own?

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A. Well, I saw the statement made by Wyant and I was wondering whether or not it affected the relative error by focusing just solely on 60- to 90-year-olds, since he argued that dropping out the older and very younger, and somehow that those reported small, small samples, and, therefore, potentially unreliable. So I was wondering if the reliability improved since Wyant never addressed that issue.

Q. So when you say you looked at Wyant's statement, that's the statement that you looked at?

A. Yes, I believe it was the -- one of the days of testimony. I can't remember which.

MR. GARNICK: I'm going to object to form. Can I explain?

MR. HAMLIN: Absolutely.

MR. GARNICK: It wasn't clear whether you're asking him if that's the only part of Wyant's testimony he was looking at, and I don't know how he interpreted it.

MR. HAMLIN: Let me see if I can clarify it.

BY MR. HAMLIN:

Q. As I understand your testimony, you reviewed Dr. Wyant's testimony in full; you did make specific reference to his testimony about the nursing home

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sensitivity test that he did where he looked at 60 to 90 year old, correct?
A. Yes.
Q. And that caused you to perform this nursing home analysis that you have since submitted to the plaintiffs?
A. Correct.
Q. The plaintiffs have supplied to counsel for the defendants a disk with Dr. Wyant's sensitivity test on it. Have you seen that disk?
A. No.
Q. That was supplied a couple of weeks ago. Tell me what you did with respect to this nursing home analysis.
A. With respect to the additional?
Q. Right.
A. What I did was I had the original programs from, I guess, the supplemental programs that Wyant had given us, and so I just made a couple of changes in the code eliminating those under 60 and over 90, and then just reran their programs. And I believe Wyant quoted a number of something like 262 million, somewhere in that neighborhood, and so to make sure that I was doing it correctly, I verified that I could, indeed, match that number, and then I just ran

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it through their jackknife program to get the relative error.
Q. Were you able to match the number?
A. Yes.
Q. And what was the result of running it through the jackknife to get the relative error?
A. The relative error was still enormous. It was in the neighborhood of over 140 percent.
Q. Was that the extent of your analysis?
A. I believe so, yes.
Q. Now, have you done any other analysis that is not contained in either your first or supplemental expert report?
A. Statistical analysis?
Q. Analysis of any sort.
A. I've certainly been reading documents since then. I don't recall any, but, again, I'm working on other cases so it's hard sometimes for me to tell them apart.
Q. Did you find any errors in Dr. Wyant's calculations regarding this nursing home analysis of 60- to 90-year-olds?
A. I didn't check specifically for programming errors. I just was really after - assuming that there are no errors - what happened to the relative

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error.
Q. Did you prepare a memo in writing setting out your analysis of Dr. Wyant's nursing home analysis?
A. No.
Q. Have you looked at Dr. Wyant's comparison of mortality rates from smoking attributable diseases for the United States and Minnesota?
A. I may have seen it, but I don't recall.
Q. Do you have any reason to disagree with his analysis?
A. Not that I can think of right now.
Q. Now, let me direct your attention to your supplemental expert report, which is Trial Exhibit 4876. Actually I'm not sure it's Trial Exhibit 4876. I think it's just Deposition Exhibit.
MR. GARNICK: If you want to make it a trial exhibit, you should also go through the procedures.
MR. HAMLIN: Right. I'm sorry. I'm in trial mode at this point.
BY MR. HAMLIN:
Q. You present in your supplemental expert report an ice fishing hypothetical.
A. Yes.
Q. Could you turn to Table 4 in your supplemental

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report?
A. Okay.
Q. Now, the title of this table is 20 Samples of 25 Minnesotans are asked if they Ice Fish, correct?
A. Correct.
Q. There are a number of columns. The first column is random sample, and those are simply numbers 1 through 20 representing the number of samples drawn, right?
A. Correct.
Q. The second column is titled percent who say, "yes;" is that right?
A. Right.
Q. And then you list the percentage --
A. Right.
Q. -- in that column, right?
A. Correct.
Q. Then the next two columns are the lower and upper limits for the 95 percent confidence interval, right?
A. Correct.
Q. And the last two columns are the lower and upper limit for the 90 percent confidence interval, right?
A. Correct.
Q. Now, I want to direct your attention to sample

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number 17. Do you see that?
A. Yes.
Q. Now, in that sample, 16 percent of the people said yes, that they do ice fish, correct?
A. Correct.
Q. And that works out to approximately 4 people out of the 25 who were sampled in sample 17, is that right?
A. I believe so.
Q. Do you want to think about that for a minute? You're the statistician.
A. It's kind of early in the morning to do multiplication in my head, but, yes.
Q. And that 95 percent confidence interval goes from a low of 2 percent to a high of 30 percent in that sample 17, right?
A. Correct.
Q. Now, suppose you drew another sample of 25 Minnesotans and only one answered yes.
A. Right.
Q. So the percent who answered yes would be approximately 4 percent; is that right?
A. Right.
Q. And if you did a 95 percent confidence interval of that sample, the lower limit would be less than

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zero, right?
A. If you used -- correct. If you used a normal approximation.
Q. Now, you would agree that you can't have a negative number of ice fishermen in Minnesota, right?
A. Correct.
Q. So you can't conclude from that sample that the true population of ice fishermen in Minnesota is zero or less than zero, right?
A. On that sample based on a normal approximation, I would not conclude that.
Q. When you say, "normal approximation," what are you referring to?
A. The confidence interval that I calculated was based on a normal approximation, and -- well, maybe no matter how you did it, you would still get negative numbers. I would have to think about that. I couldn't conclude, given that one person answered yes, that it was exactly zero.
Q. Now, when you say, "normal approximation," are you talking about calculating at 95 percent confidence interval?
A. Right. I'm using this 1.96 standard deviation number which is coming from normal distribution, and in this example we're looking at proportions, and in

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that case, since you can't get negative numbers, the approximation as you've just pointed out may not work in certain cases for this particular example as well.
Q. In fact, in your expert report you yourself say that the true population is 25 percent for purposes of your example, rights?
A. Right. In this hypothetical simulated it, assuming 25 percent.
Q. And just for purposes of this example, you know that there are then ice fishermen in Minnesota?
A. The example that you just mentioned?
Q. Your example that you give in your expert report. Let me back up. You say in your expert report that for purposes of this example you are assuming that the true population is 25 percent, correct?
A. I'm just assuming that.
Q. I know you are, but I'm saying for purposes of your example, you're saying that the true population is 25 percent, right?
A. Right.
Q. So for purposes of your example, you know then that there are ice fishermen in Minnesota, even before you calculate any confidence intervals, right?
A. I may know there is at least one because I've

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talked to one person in my life who said that they ice fished particular -- somebody who was painting my house offered to take my son ice fishing; but other than that, I don't think anybody else in my life has told me explicitly that they ice fish.
Q. But just from your time in Minnesota, you have learned that people do ice fish, correct?
A. Well, if I were to incorporate my priors, I would probably want to do a basion (phonetic) analysis, but this example is just an assumption. I could have assumed zero. I could have assumed 80 percent.
Q. But from your life experience in Minnesota, you know that people in Minnesota do ice fish?
A. I've never seen a person ice fish, but I've seen movies and talked to at least one person who said they ice fish.
Q. You've never seen an ice house on the lake?
A. I may have, but I never saw anybody in it.
Q. Now, with respect to the sample where one person says they ice fish, you would agree that this is not a reasonable approximation of the number of ice fishermen in Minnesota, right?
A. Given that sample -- I mean, if you only did that sample and you had no other prior knowledge and

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didn't incorporate that in a basion (phonetic) fashion, my conclusion would be that I couldn't really say much, because one person -- although you would cross-negative numbers, I believe the standard errors would be fairly large because it would be something on the order of 1/25th times 24 25th's divided by 24, or 25. Depending on how you want to estimate standard deviation, taking the square root, it would have a large standard error, therefore, it would have a large confidence error interval, so, therefore, I probably couldn't say much.
Q. Let's suppose you don't ignore your prior information and you've got the 20 samples on Table 4, plus the sample where one person says yes. So assume for me that that's the situation. Do you understand that?
A. So are you asking me --
Q. All I'm asking you to do now is just assume basically three things: Number one, that you have prior information that people do ice fish in Minnesota, okay?
A. All right.
Q. That's the first assumption. The second assumption is that you have the samples that are listed in Table 4. Are you with me?

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A. Correct.
Q. And the third assumption is that you have an additional sample where one person has answered that they ice fish, and, thus, the percent who say yes is 4 percent.
A. Okay.
Q. Taking into account all of that information, would you agree that this sample where one person says they ice fish where the confidence interval has a lower limit below zero is not a reasonable approximation of the number of people who ice fish in Minnesota?
A. If I were to do this, and I don't know with what purpose, I would conclude that given the wide confidence intervals, this is a highly unreliable estimate. And one solution in this example would be to increase my sample sides to get more reliable estimates.
Q. So what you would say is that that is not an accurate approximation of the number of people who ice fish in Minnesota; that one sample where one person says yes, right?
A. Well, based on the statistical analysis, if all the assumptions were correct, that point estimate would be as reasonable as any other. But given the

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confidence intervals, I would -- if I was answering this for some purpose that was of use, I might be inclined to get a much larger sample in order to have a more reliable estimate.
Q. Well, in your Table 4 you have a number of samples that are larger, right?
A. If I combine them, I guess.
Q. All I'm asking you is that this one sample where the confidence interval goes below zero is not a reasonable approximation of the number of people who ice fish in Minnesota, right?
MR. GARNICK: Asked and answered.
THE WITNESS: Well, this approach is not a basion (phonetic) approach, and, therefore, it presumes essentially no prior information. And if I came in from California or somewhere where ice fishing is unknown, I may believe that nobody ice fishes. Now, it's a mathematical impossibility in this example for a proportion to fall below zero, so I would disregard it because we're estimating your proportion, not a negative that potentially can be negative.
BY MR. HAMLIN:
Q. So what you're saying is that the only way that this example works is if you exclude prior

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information; is that right?
A. I'm saying that the confidence interval estimates are an approximation which may not be a good approximation for proportions. You have small samples or to get something close to zero, and that if you get a negative number in this example for a lower confidence limit, then one suggestion that I would make would be that it's an unreliable estimate because it's -- and essentially you should increase your sample size.
Q. Well, suppose the president of the University of Minnesota asked you to give him an approximation of the number of ice fishermen in Minnesota. Would you tell him that it was zero or negative?
A. I would have to know how much resources he would give me to answer that question.
Q. Suppose you've got your Table 4 here --
A. Yes.
Q. -- and you did an additional sample where one person said they ice fished. That's the information you've got, plus you've got prior information that people ice fish in Minnesota.
Now, the president of the University of Minnesota comes to you and says: What is your best estimate of the number of people who ice fish in

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Minnesota. What would you tell him?
A. What I would probably do, if I had all this information, I would combine all the data and give him the confidence interval and sort of tell him -- I don't know how confident you want to be, but here is a 95 percent confidence interval. Tell me some other confidence interval and calculate it, and you can be 95 percent sure they fall between this number and that number.
But if I had all these samples, all 20 of them, then presumably I would actually have 500 observations, plus your 20, 25 so 525. And so I would combine them all in hopes of increasing their reliability.
Q. You wouldn't tell the president that your best estimate is zero or a negative number of ice fishermen in Minnesota, right?
MR. GARNICK: Asked and answered.
THE WITNESS: I haven't calculated it for the 525 people, but my guess is that the confidence interval would probably not be close to zero at the 95 percent.
BY MR. HAMLIN:
Q. Well, if he asked you that question, would you take into account prior information that people do,

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in fact, ice fish in Minnesota?
A. If I were to get a negative estimate for the lower limit, I would probably tell him that maybe he could give me some more money so that I can go out and ask more people and get a more reliable estimate. I would say that it's pretty hard for me to conclude much from what I've done.
Q. My question to you is, would you exclude prior information that people ice fish in Minnesota in telling the president what your estimates is?
A. If I wanted to include prior information, to the best of my ability, and assuming that I have some sort of priors that are useful, I would probably try to build it into the model in some formal statistical fashion, and then I would give a posterior distribution of -- given my priors. And my sample here is the posterior position that I place upon the possible likelihood of the fraction who ice fish, if I were to do it that way.

If I were to do a more informal prior estimate, I think I answered that; I would informally incorporate priors. The only thing I would probably say is if I got one lower limit that was well below zero, I might say I need a larger sample because this is completely unreliable.

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Q. And it's unreliable because you know from prior information that people do ice fish in Minnesota, right?
A. It would be unreliable to me simply because I know that A, it would depend on the width of the confidence interval. But certainly for proportions I would be worried that proportion can never be negative. My guess though is that the width of the interval would be fairly large in that case.
Q. Suppose that you knew going into this exercise to answer the University president's question that 25 percent of Minnesotans ice fish -- are you with me?
A. What do you mean know?
Q. That you know from prior information.
A. But I want to know what your definition of know is. How precise do I know?
Q. That you have read studies that others have done that you consider to be reliable, and that those studies have concluded the 25 percent of Minnesotans ice fish. Assume that for the purposes of the question, all right?
A. Okay. I'll assume that I've read some that have said that.
Q. In giving the University president your answer, would you throw that prior information away, or would

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you make use of it?
A. If I were to make use of it -- and I believe that these studies did everything correctly -- there is -- that they were just different samples of Minnesotans - I believe random samples - and all the types of sampling issues done to my satisfaction, I might do some sort of immediate analysis or some method to incorporate that prior information statistically. If I disagreed with the study, I wouldn't say they were reliable. It may inform me to some extent, but, you know, it's unclear, for example, if the studies all found 25 percent, but they went to a lake during the winter and asked people around the lake whether or not they ice fished, and 25 percent said yes, I don't know if I would necessarily infer that for Minnesota and tell the president that 25 percent ice fish.
Q. Assume for the purposes of my question that you don't have any questions about the 25 percent number, that you are satisfied that that number is correct. Would you throw that prior information away in answering the university's -- the university president's question?
A. It would depend upon how reliable an estimate those individuals got. I mean, I would have to know

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more to really answer that.
Q. You're not listening to my question. My question is that you're satisfied that those estimates are reliable that this is prior information, and you are satisfied with it. Can you assume that for the purposes of the question?
A. Okay.
Q. Now, assuming that that information is available to you, would you ignore it in answering the president's question?
A. If I was totally satisfied with everything about the study, if I knew the reliability, and I suppose to add to your hypothetical there was one study that sampled 700,000 Minnesotans randomly, some huge number, and was done very recently in the proper time frame, so on and so forth, I would probably say, look, we don't have to waste time doing a study because we already know the answer.
Q. So you would make -- go ahead.
A. So I would then just report what the confidence interval estimate was and for that other study and say just -- you know, 25 more Minnesotans is not going to tell us too much since this other person has done exactly what I would have done on a sample of 700,000. So we can save the University some money by

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just taking that estimate. And given 700,000 and the simple problem that's being analyzed, I don't know off the top of my head what the reliability would be, but I'm guessing that it would probably be.
Q. So you would not ignore that prior information in answering the University's -- the University president's question?
A. Given that hypothetical, no.
Q. Now, directing your attention once again to Table 4, your percentages go from a low of 16 percent to a high of 44 percent in sample number 2. Do you see that?
A. Yes.
Q. Now, again, if you were giving an estimate of the number of Minnesotans who ice fish, you would not ignore that 44 percent sample, right?
A. Well, depends -- I mean, here I'm hypothetically taking 20 samples so I don't know. In practice, I would take one sample. So I don't know how to really answer that.
Q. Well, if you have this information in Table 4, and you are asked by the University president, give me your best estimate of the percentage of people who ice fish in Minnesota, you would take into account all the information in your table, right?

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A. I would combine the samples, re-run the thing on all -- I don't know if you're assuming I got that extra sample or not, but run all 500, calculate 95 percent confidence interval and say: I'm 95 percent sure that X percent plus or minus whatever Minnesotans ice fish, or something like that.
Q. So you would not then throw out sample number 2 in doing this combined calculation, right?
A. If, in fact, I had set my sample size at 500 instead of, you know, a hypothetical 25 so I did have all 20 samples available, I would not throw away that information, right.
Q. You would take into account sample number 2 as well as the other samples, right?
A. Assuming that, again, that I've done a random sample and done the correct parameters and those types of things, yes.
Q. As a statistician, it's simply good practice to take into account all the information that you have available to you; in this case, the information in Table 4, right?
A. To the extent, yeah, that it's possible, you would want to always try to incorporate all the information.
Q. Now, suppose you wanted to do an in-depth study

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of ice fishing in Minnesota, and you had a choice to go either to rural Minnesota or Minneapolis-St. Paul in order to do your study. Which would you choose?
A. I don't understand the question.
Q. All right. You want to do an in-depth study of ice fishing in Minnesota. You have a choice; you can confine your study to the Minneapolis-St. Paul area or you can confine your study to rural Minnesota. Which would you choose?
A. It would depend on what question I'm answering.
Q. Well, let's suppose that one question is how many people ice fish in Minnesota.
A. The particular question was how many people ice fish in Minnesota? I wouldn't want to then restrict myself to any particular subset, if that was the exact question.
Q. Well, let me ask you this: Where do you think the most ice fishermen are, in rural Minnesota or in the Minneapolis-St. Paul area?
A. I have no clue.
Q. So you don't have any prior information that would allow you to answer that question?
A. Given the number of people I know who have cabins in rural Minnesota, I have no clue.
Q. Suppose you wanted to estimate what people spent

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on ice fishing? Now, this is a problem that's a little more complex than whether or not people ice fish, correct?
A. Yes.
Q. You may want to look at expenditures for lines and hooks, right?
A. Yes.
Q. You may also want to look at expenditures for boots, parkas, propane heaters, correct?
A. Perhaps, yes.
Q. You would want to look at a number of equipment choices that people make when they ice fish, right?
A. Yes. I mean --
Q. Because how much people spend on ice fishing is not simply a yes or no answer, right?
A. Right.
Q. Would you agree that estimating the costs of smoking-related disease is more complicated than determining whether someone is or is not a smoker?
A. Yes.
Q. Let's go back to the study of expenditures for ice fishing.
A. Right.
Q. Now, let's suppose you took a sample of 25 ice fishermen, and you found that one spent $10.00 on

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hooks and lines and bait.
A. Okay.
Q. And let's suppose you found that another person in that sample spent $10,000 on equipment such as parkas, boots, ice houses and snowmobiles, okay?
A. Okay.
Q. So you've got those two numbers, $10.00 and $10,000. Are you with me?
A. Right.
Q. Now, in estimating the costs of ice fishing, would you exclude from your sample the person who spent $10.00?
A. You have to make further assumptions on your hypothetical; I mean, whether or not they're using these hooks just for ice fishing or for other fishing or -- I mean, you have to worry about parceling it out.
Q. Assume they're just using the equipment for ice fishing. You wouldn't throw that information away, right?
A. No, but I could tell you right away that you're going to have a highly -- or a very unreliable estimate.
Q. Similarly, would you exclude the individual who spent $10,000 on ice fishing equipment from your

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study?
A. No.
Q. And, again, you would want to take into account all of the information that was available, right?
A. Both for the estimate and for calculating reliability, yes.
Q. Similarly, in estimating the costs of smoking-related disease in this case, you would not ignore prior information about smoking and disease, right?
A. Would you repeat that?
Q. Sure. In estimating the costs of smoking-related disease in this case, you would not ignore prior information about the relationship between smoking and disease, right?
A. I would not completely ignore it.
Q. Now, this prior information would include things like the Surgeon General's reports, right?
A. Well, I mean, the issue you have was how you incorporate it and also the fact that there is some open question on how smoking and disease relates to smoking and costs is not the same thing, so you're -- your question -- you sort of said smoking and disease, but then you said -- you used that prior for smoking and costs. How you would do that, I would be

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unclear because the connection is not direct.
Q. Is it your testimony that you would ignore the Surgeon General's reports on smoking and disease?
A. I wouldn't ignore it; I would just not know how to necessarily incorporate it formally.
Q. You might have to consult with another expert such as an epidemiologist in order to determine how to use that information, right?
A. That may be helpful.
Q. Now, has -- similarly, you would also take into account cost information contained in the Medicaid and Blue Cross claims data in estimating smoking attributable costs in this case, right?
A. That would be useful.
Q. That's important prior information to you, right?
A. What, the costs? That would be used in the estimations, but you can't directly use it because you don't know who smoked.
Q. But you would have to use it in the estimation, right?
A. I believe at some point you would have to have some measure of costs.
Q. Now, has your counsel shown you the 1996 American Heart Association report which states that

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medical costs in treating smoking-related disease is approximately $50 billion a year?
A. I may have seen it, but I don't know if I actually remember the title as it being such.
Q. Let me show you what has been marked as Trial Exhibit C -- strike that. CN000046.
A. Yeah, I think I've paged through this.
Q. Let me direct your attention to page 16. Let me direct your attention to column one which is titled cigarette/tobacco smoking. Do you see that?
A. Let's see.
Q. Left-hand column.
A. Okay.
Q. If you go down to the third bullet point it states: Smoking-related illnesses cost the United States about $50 billion annually in medical care. Do you see that?
A. I see that statement.
Q. Now, in estimating smoking-attributable costs, would you ignore that information?
A. I may.
Q. You would not consider it to be significant?
A. I would have to know more on how they derive that number. If they just threw a dart and came up with 50 billion, I might want to ignore it.

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Q. Do you think the American Heart Association threw a dart and came up with --

MR. GARNICK: Object to the form of the question.

THE WITNESS: I have no idea how they came up with that number. If they came up with what I would perceive as a biased statistical procedure, I would potentially disregard it. If that number was unreliable, and even if I believed that they did everything correctly, dotted all the I's, crossed all the T's, and the relative errors were 100 percent, that wouldn't tell me much.

BY MR. HAMLIN:

Q. Have you done any investigation to determine the reliability of that number?

A. No.

Q. Did you take this report from the American Heart Association into account in forming any of your opinions in this case?

A. No.

Q. Let me direct your attention now to your supplemental expert report, and specifically to Table No. 5. Table No. 5 is entitled Jackknife Confidence Interval Estimates.

A. Correct.

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Q. Do you see that? Now, as I understand it, if you look at the first column, it's titled Model, right?
A. Yes.
Q. And then you've got 25 descriptions here.
A. Right.
Q. And those are contained in three different categories, right?
A. Yes.
Q. The first category is Combined Public Aid and Blue Cross Blue Shield, right?
A. Right.
Q. Second category is Public Aid; is that right?
A. Yes.
Q. Third category is Blue Cross Blue Shield?
A. Yes.
Q. So within those three categories, you then breakout a number of models, correct?
A. Yes.
Q. If you go to the second column, that's titled Estimate. Do you see that?
A. Yes.
Q. How did you arrive at the numbers in this column?
A. I used the programs provided by plaintiffs'

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experts to calculate these. I believe they're maybe -- maybe some of the groupings are different than they provided, but they're coming from the plaintiffs' experts' model.
Q. The plaintiffs' experts did not breakout 25 different models, right?
A. I don't believe so, no, I think they broke out three or so, something like that.
Q. Let's go to the next column, Relative Error. What is that?
A. That is the -- an estimate of the standard deviation of the estimate divided by the estimate. So it's the standard deviation of the estimate relative to the estimate.
Q. Are these numbers that you calculated?
A. Again, I calculated those with the plaintiffs' experts' programs, and I believe at least some of them were provided in my report; others I calculated using their report.
Q. Now, the next two columns contain the upper limit and lower limit for 95 percent confidence intervals -- for the 95 percent confidence interval, correct?
A. Correct.
Q. Did you calculate these confidence intervals?

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A. Again, based on essentially the estimates and relative errors that I got from plaintiffs' programs, I then calculated them.
Q. Can you briefly describe for me how you did that?
A. Essentially you need to get these standard deviations of the estimate, so to get that, you got to multiply the estimate by the relative error. And then once you've got that, essentially you take plus or minus 1.96 times that standard deviation or estimate of standard deviation to get the confidence interval for the 95 percent. And for 98 it would be 1.645, and for 80, I can't remember exactly, but 2.4 or something like that.
Q. Now, the calculations that appear in these columns are calculations that you yourself performed, right?
A. Yeah, for the confidence interval.
Q. Are any of these calculations taken directly from the plaintiffs' expert reports?
A. You mean just transcribed for the 95 percent confidence interval?
Q. Right.
A. I don't think so, no.
Q. Let's go to the next set of columns, the 90

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percent confidence interval.
A. Yes.
Q. Again, you yourself calculated the numbers that appear in those columns?
A. Again, relying on the first two -- the estimate column and relative error column, yes.
Q. Let's go to the next column, 80 percent confidence interval. You show lower limits and upper limits?
A. Yes.
Q. Again, did you yourself calculate the confidence intervals that appear in that column?
A. Based on the plaintiffs' information, I then calculated it.
Q. And plaintiffs' information you're referring to would be in the column marked Estimate and the column marked Relative Error?
A. Again, a couple of those - maybe three of them - were reported directly in their report. The other ones can easily be taken from their computer programs with slight modifications.
Q. Let me direct your attention to the last set of columns marked 50 percent confidence interval. Did you use the same procedure for calculating these confidence intervals?

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A. Yes, although I multiplied the standard deviation by a different number. I don't even remember what that one was, but it's not 1.96.
Q. Now, let me direct your attention to the first entry under the model column combined Public Aid plus Blue Cross Blue Shield. Do you see that?
A. Yes.
Q. And then you have a number of breakouts of that model, right?
A. Correct.
Q. Now, is the data that you are looking at in this table data derived from NMES and NHANES?
A. The data -- I mean, there are several data sets that are used to come up with this.
Q. What are the data sets?
A. Well, for the diminished health and the smoking-related numbers. So everything but nursing home relies on the NMES, relies on the BRFSS, and also relies on the data provided by Medicaid, Blue Cross Blue Shield, Public Aid plus Blue Cross Blue Shield next to expenses.
Q. When you calculated 95 percent confidence error, what data did you use for that calculation?
A. Well, the data is derived from, again, the estimate and relative error, which comes from those

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original data sets that I just described. So indirectly it comes from those data.
Q. So the confidence intervals here reflect data from NMES, correct, that's one source, right?
A. Yeah. It depends on what you call the -- I mean, how you define that. The estimates reflect data from those three sources, the relative errors, to my knowledge. In computing those, taking into account the sampling error in the three surveys, the Medicaid is GAMC and those data are not necessarily estimates. But the BRFSS, for example, samples variabilities.

BRFSS which is a random sample was ignored in calculating the relative error, but they form some part in the confidence interval, whether in the relative error or the estimate. The point estimate -- they're both based on confidence intervals in lower and upper limit and are both based on the estimate and the relative error, and one way or another, those rely on both data sets, whether correctly or incorrectly. You rely on those three data sets.
Q. Well, let's talk specifically about the relative error for diminished health pure plus mix. You have it listed here as .799. Do you see that?

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A. Yes.
Q. Does that reflect the variability of the NMES data set?
A. Pretty much.
Q. Does it reflect the variability of the BRFSS data set?
A. No.
Q. Does it reflect the variability of the NHANES data set?
A. No. NHANES wasn't used in diminished health.
Q. Right. NHANES was used for the nursing home data?
A. Right.
Q. So would it be fair to say that, with the exception of the nursing home relative error, the other relative errors listed in the relative error column reflect the variability in the NMES data set?
A. For the most part, although, I haven't in detail studied a couple of the models; they don't reflect the uncertainty and the purpose, but assuming, you know, everything is done correctly --
Q. And then if we go to item number 7 which is nursing home you see the relative error there of 1.749. Do you see that?
A. Correct.

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Q. Again, that reflects the variabilities in the NHANES data set; is that right?
A. To the extent -- yeah. What they've done is correct; it reflects the sampling variability in the NHANES data, right.
Q. Direct your attention now to item number 9 which is Diminished Health plus Refine plus Nursing Home, do you see that?
A. Yes.
Q. Now, that includes all of the models, correct?
A. Correct.
Q. And if you go to the 90 percent confidence interval, do you see that the lower limit is positive, right?
A. Correct.
Q. And the upper limit is also positive, correct?
A. Correct.
Q. And that upper limit is $3,395,835,057; is that right?
A. Correct.
Q. And that's more than the state and Blue Cross Blue Shield are claiming as damages in this case, right?
A. Correct.
Q. Do you know how much the state and Blue Cross

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are claiming as damages in this case?
A. I believe it would be the estimate here. I don't know how they rounded it, but around 1.77 billion.
Q. Let me direct your attention now to the Blue Cross Blue Shield model which is down at the bottom of the column marked Model. Do you see that?
A. Yes.
Q. I want to direct your attention now to item 25, Diminished Health plus Refined. It's the last item.
A. I see it.
Q. Now, this represents all of the models for Blue Cross, right?
A. Correct.
Q. Because there is no nursing home model for Blue Cross?
A. Correct.
Q. Now, the estimate is $459,985,745, right?
A. Right.
Q. And that is the damage estimate of the plaintiffs' for Blue Cross, right?
A. Yes.
Q. Let me direct your attention to the 95 percent confidence interval for that item, Diminished Health plus Refine. Do you see that?

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A. Yes.
Q. Now, the lower limit is positive, and it is 250,825,180, right?
A. Yes.
Q. The upper limit is also positive, and that's 669,146,310, right?
A. Correct.
Q. And the plaintiffs' damage estimate in column 1 falls within those two intervals, right?
A. Correct.
Q. Let me direct your attention now to the 90 percent confidence interval column for that particular model; that is number 25, Diminished Health plus Refined.
A. Okay.
Q. The lower limit for the 90 percent confidence interval is 284,452,473, right?
A. Yes.
Q. That's positive?
A. Correct.
Q. The upper limit is 635,519,017; that's also positive, right?
A. Right.
Q. And the plaintiffs' damages estimate falls within those two limits, correct?

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A. Correct.
Q. Now, you did confidence intervals for 25 models on this table, right?
A. Various breakouts. It's not different models, but it's different ways to add up the costs essentially. They're all based on these same estimates that the plaintiff did.
Q. Well, for example, if you go to the items 4, 5 and 6, you broke out the refined model into three different sub-models, if you will, right?
A. Correct.
Q. And the plaintiffs didn't do that, correct?
A. I believe they just reported it for the refined -- number 4, the smoking-related.
Q. Well, in fact, the plaintiffs did confidence intervals for four groups, correct?
A. Yes.
Q. The first group was the refined model for both Blue Cross and the State of Minnesota, correct?
A. Correct.
Q. And the second group was all diminished health pure?
A. Correct.
Q. And that was for both the state and Blue Cross, right?

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A. Correct.
Q. And then the third grouping for purposes of computing a relative error, was the diminished health mix for both Blue Cross and the state, right?
A. Correct.
Q. And then the final grouping was the nursing home model, right?
A. Correct.
Q. Now, in the refined model grouping, the plaintiffs combined all of the major smoking attributable diseases for both the state and Blue Cross, right?
A. Correct.
Q. And in the diminished health pure grouping the plaintiffs combined all reported for health for both the state and Blue Cross, right?
A. Well, that formula is a little more complicated. I don't know what you mean exactly. The expenditures that they -- that they used to estimate the model was everything for 19- to 34-year-olds; everything for expenditures for major smoking-related diseases as defined by Dr. Samet for the 34 and aboves.
Q. And that included self-reported poor health status, right?
A. Yeah. In their model they're using that as sort

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of an indirect effect of smoking, and they call that the pure.
Q. And in the nursing home model, all of the nursing home information was gathered for purposes of computing a relative error, right?
A. I don't understand.
Q. For purposes of computing the relative error for the nursing home model, the plaintiffs' expert looked at the NHANES statement, right?
A. Well, he looked at the variability within the NHANES, but not the BRFSS.
Q. So for purposes of computing the relative error, the plaintiffs' experts looked at nursing home data, correct?
A. Well --
Q. Let me ask it this way: For purposes of computing the relative error for the nursing home model, the plaintiffs' expert looked only at the nursing home data, right?
A. Well, BRFSS enters into the relative error calculations, not the uncertainty in BRFSS. BRFSS contains people not in nursing homes. So to that extent, the answer is no, they looked at more.
Q. So does the relative error reflect the combination of the NHANES data and the BRFSS data in

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the nursing home model?
A. No, because it in a sense reflects the point estimates derived from the BRFSS, but it does not reflect the sampling variabilities contained in the BRFSS.
Q. Let me direct your attention to Table 5 again, and specifically items 4, 5 and 6 where you do the three breakouts of the refined model. Item 4 is refined smoking-related, right?
A. Correct.
Q. Item 5 is refined lung cancer, correct?
A. Correct.
Q. Item 6 is refined CHD; is that right?
A. Correct.
Q. Now, with respect to item number 4, you say it's refined smoking-related. What did you include in that breakout that is not included in items 5 and 6?
A. Well, if you -- I believe they should add up. I mean, 5 plus 6 should equal 4.
Q. Is that how you did it? So smoking-related is basically all major smoking attributable diseases?
A. As defined by Samet.
Q. As defined by Samet?
A. Right.
Q. And then you broke that into two additional

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refined models; one for lung cancer, one for CHD, right?
A. I just broke the expenses up. I didn't reestimate the model from the new data in any way and calculate the relative errors that way.
Q. Now, if you take a look at the 95 percent confidence interval for item number 4 which is the entire refined model, correct?
A. Yes.
Q. The lower limit is positive, correct?
A. Correct.
Q. And the upper limit is also positive, correct?
A. Correct.
Q. And the upper limit is $1 billion plus, right?
A. Correct.
Q. The damage estimate of the plaintiffs is 557,973, right?
A. You said thousand.
Q. Did I say --
MR. GARNICK: We'll so stipulate.
BY MR. HAMLIN:
Q. The damage estimate 558,991,073, right?
A. Right.
Q. Now, you broke that down into refined lung cancer and refined CHD, correct?

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A. Correct.
Q. If you look at the 95 percent confidence interval for refined lung cancer, the lower limit is positive?
A. Correct.
Q. And the upper limit is positive, and that's 290,287,574, right?
A. Correct.
Q. And the damage estimate for refined lung cancer is 205,931,478, correct?
A. Correct.
Q. And you broke it down into refined CHD. There if you look at the 95 percent confidence interval, the lower limit is negative 21,932,967, right?
A. Right.
Q. The upper limit is 726,053,415, right?
A. Correct.
Q. And the damage estimate 352,060,224, right?
A. Point estimate, yes.
Q. So to get a refined -- strike that. In the refined model, in order to get a negative lower limit at the 95 percent confidence interval, you had to break the model down into two separate sub-groups; one for lung cancer and one for CHD, right?
A. Well, I won't say I was doing that in order to

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get it. All I'm saying is that when you break it down, that is the 95 percent confidence interval.
Q. When you combine them, you don't get a negative number for the lower limit for the 95 percent confidence interval, right?
A. Correct.
Q. You get a positive number?
A. Correct.
Q. Let me direct your attention to item number 2 which is diminished health pure.
A. Yes.
Q. Do you see that?
A. Yes.
Q. There the estimate is 475,802,803, right?
A. Yes.
Q. If you go to the 95 percent confidence interval, the lower limit is positive, right?
A. Correct.
Q. And the upper limit is also positive, right?
A. Correct.
Q. And it's 866,543,375, right?
A. Correct.
Q. Now, that number, the upper limit --
A. Yes.
Q. -- that's based on a hypothetical sample from

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NMES, correct?
A. No. This is calculated from their data.
Q. Well, the data -- strike that. You agree that the plaintiffs used the actual NMES data to arrive at their estimate of 475,802,823, right?
A. Correct.
Q. Is there an actual NMES sample that you used to calculate the upper limit of the 95 percent confidence interval for the diminished health pure model?
A. I used the relative error and the estimate and the relative error which was calculated by -- I guess this -- yeah, they broke out the pure. The pure was calculated by the plaintiffs and I believe they base that calculation on the same NMES data.
Q. Well, are you saying that this 866,543,375 number is based on the NMES sample that was actually drawn?
A. Correct.
Q. That's not a hypothetical sample?
A. No.
Q. But, in fact, what it is is simply a mathematical calculation that you performed?
A. Correct. It's just, again, an interval estimate which is used to get a feel for the reliability of

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their point estimate and all based on the same data.
Q. Well, let me ask you this: When you do a confidence interval, you come up with a range of numbers, right?
A. A range of numbers, correct.
Q. And what is the definition of a confidence interval?
A. It's a range of numbers so that you have the 95 percent confidence interval. You have 95 percent confidence that the actual, in this case true damages, lies within that interval.
Q. And there is only a 5 percent chance that it does not, right?
A. For the 95 percent confidence interval, yes.
Q. And when you do a 95 percent confidence interval you are in effect stating that if other samples were drawn, the range of numbers would cover the confidence interval, right?
A. Well, the confidence interval just like the point is an estimate, and, in fact, a random variable. And if you drew another sample, your calculation of the 95 percent confidence interval would change.
Q. Well, is it fair to say that when you calculate a confidence interval, you're saying that if other

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samples of the NMES data were drawn, you could get numbers as high as in this case $866 million or as low as $85 million?
A. If I draw another sample? Is that what you're saying? If I drew another sample, hypothetically, chances are I could have arbitrarily large or small numbers; the question is what are those chances.
Q. So the confidence intervals that are computed here have absolutely nothing to do with hypothetical samples that could be drawn from NMES?
A. I don't know what you mean nothing to do. They're not calculated from hypothetical samples.
Q. Clearly they're not calculated from hypothetical samples, they're calculated from the sample that was actually drawn, correct?
A. Right.
Q. But what, if anything, do they tell us about hypothetical samples that could be drawn?
A. What the 95 percent tells us is that if we were to repeatedly sample, repeatedly calculate, this 95 percent confidence interval which would move from sample to sample, 95 percent of the time that interval would contain the true value.
Q. When you say, "if we were to repeatedly sample," you're talking about doing hypothetical samples,

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right?
A. Well, that only relates to the term 95 percent. Really, it's, again, based on the original sample. And it's a measure of the reliability of your estimate based on the data that you use to get the estimate.
Q. But the underlying theory is that if we were to repeatedly sample and repeatedly calculate this 95 percent confidence interval, then 95 percent of the time that interval would contain the true value, correct?
A. That's -- reflects our statement of what we mean, we're 95 percent confident.
Q. But, in fact, there was only one sample drawn from NMES in 19 -- strike that. There was only one sample that forms the basis of NMES in 1997, right?
A. Correct.
Q. Repeated samples were not drawn in 1997, correct?
A. I don't think so.
Q. Well, once again referring to the diminished health pure 95 percent confidence interval, is it fair to say that if repeated NMES samples had been drawn, you could get a number as high as 866,543,375?
A. You could.

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Q. Correct?
A. You could.
Q. Based on your calculation you could?
A. You could. There is a chance.
Q. Right. And the same is true for the lower limit of the confidence interval which is 85,062,271, right?
A. You could get a number lower than that or that.
Q. If you did repeated samples of NMES, right?
A. If I took a new sample I could get anything. I don't know what I would get.
Q. I'm now going back to your definition of what you mean by 95 percent confidence interval. Where you say if you repeatedly sample NMES, then you would get a range of numbers?
A. The range would change from sample to sample. If I somehow magically knew the truth, somebody came down and said this is the right answer, and then I went out and repeatedly sampled and calculated the new 95 percent confidence interval for each sample, if I repeatedly did that, on average 95 percent of those confidence intervals would contain the true value, but I don't know the true value.
Q. But you would have a range of numbers, right?
A. That range would change from sample to sample,

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yes.
Q. But if you were based on one sample that was actually drawn, and you performed a 95 percent confidence interval on that sample, actually drawn, you would get a range of numbers, right?
A. Right.
Q. And that range of numbers would show you that if you repeatedly sampled NMES, you would get a number that would fall within that range, 95 percent of the time, right?
A. Approximately.
Q. But, in fact, in reality you don't draw new samples from NMES?
A. Right. And that's why I used this -- not like in that fashion, but more as a check of the reliability.
Q. So these repeated samples that you refer to in calculating the confidence intervals are hypothetical samples, right?
A. Well, they're -- I don't know what you mean by hypothetical.
Q. They were never drawn, right?
A. No, but the statement has to do with a mathematical statement as if they were drawn which potentially you could, but --

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Q. But you're assuming for purposes of calculating your interval that they were drawn, right?
A. No. I only need the original data to calculate my intervals, so I don't need to assume that they were drawn.
Q. For purposes of calculating your interval and interpreting your interval, you talk about repeated samples, right?
A. Repeated samples come into play in how I define what I mean by 95 percent confidence.
Q. But the repeated samples that you refer to are not actual samples that were really drawn from NMES, right?
A. They -- correct.
Q. They're the calculations that you've done?
A. No, they're not. They're not the calculations. The calculations that I've done are based on the original samples. We were just talking about how to interpret this notion of 95 percent confidence, and in that I -- just like when you're talking about anything that has to do with probability, you would talk about hypothetical repeated samples; for example, what's the probability that I flipped a coin and I get a heads? You might have some sort of frequency approach to that. So it's just a

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probability statement.
Q. That's all I was getting at; that when you talk about these repeated samples, these are hypothetical repeated samples, right?
A. I'm defining what I mean by 95 percent confidence as a probability statement, and that's how it is defined. But the calculations there are not based on any hypothetical data.
Q. But in interpreting the 95 percent confidence interval, you are essentially saying that if hypothetical repeated samples were drawn, this would be the interval.
MR. GARNICK: I'm going to object. Asked and answered.
BY MR. HAMLIN:
Q. Correct?
A. Well, the way to interrupt a probability statement would be that if I were to repeatedly draw a sample, what do we mean by 95 percent and I think I've already answered what I mean by 95 percent confident the interval would move from sample so sample and 95 percent of the time true value of confidence interval.
Q. But the repeated samples that you're talking about are not samples that were ever drawn, right?

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A. Repeated samples that I talk about? In any probability statement like that that's true.
Q. Let me ask you about the calculation of the 95 percent confidence interval. Are you saying that if the NMES survey was repeated a certain number of times that this is the confidence interval you would obtain?
A. No. This confidence interval is based on the originals data and what it's saying is -- this notion of repeated has to do with if this were reliable and if I repeatedly took a sample of the same size and redid this model I wouldn't have to change this much, i.e., if the law of averages were holding I, wouldn't expect much variability, right? This is a measure of that variability saying that if I repeated again with a new sample then it's likely that the estimate depending on which one you looked at, would change dramatically which gives me a feel for how reliable this point estimate is.
Q. When you refer to the term repeated sample, how many repeated samples are you referring to when you talk about a 95 percent confidence interval?
A. Well, I mean, with any estimate you would like to know whether or not it's accurate or not. Okay? And -- I mean the way statistics have come up with

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away to gauge the accuracy is to calculate confidence intervals or relative error which is just a special case for a particular type of confidence interval but that's the way we Judge the accuracy of the estimate. We need to know that.

If it's very accurate which means that if I would do this again the number wouldn't change very much, then we're kind of confident that the law of averages are holding. But if it's inaccurate either by a large relative error or if you're looking at 95 percent confident intervals, wide intervals, that gives us some indication that this large number or small, depending on where you're looking at, might be purely due to chance, random sampling error.

Q. Well, is there a certain number of samples that are commonly referred to as being part of a 95 percent confidence interval?

A. No, it's a probability statement. It's a way to interpret what you mean by probability.

Q. Well, let me direct your attention now to diminished health status mix?

A. Yes.

Q. The estimate there is four hundred '76 million 500 seven four thousand 1 two five, correct?

A. Correct.

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Q. Then if you look at the 95 percent confidence interval, the lower limit is negative 961 million, right?
A. Correct.
Q. The upper limit is 1.9 billion, right?
A. Correct.
Q. Let me ask you this: Is the 1.9 billion the true number?
A. I don't know what the true number is.
Q. Is the negative 961 million the true number?
A. Like I said, I don't know what the true number is.
Q. The 1.9 billion again is a 95 percent confidence interval that's based on repeated samples in your mathematical calculation, right?
A. Again, it's -- we'll just make it a probability statement and the way to interpret that probability statement to think of these hypothetical samples. What we're saying is we're '95 per confident that the true value again assuming that there is no non-random sampling there, i.e., that they've dotted all the I's and crossed all the T's in their models, the best models on earth, that we're 95 percent sure in the notion that I've gone through before that the true estimate for mixed diminished health lies somewhere

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between 1.9 million and minus 961 million, but we don't know where and it may layout side that. I'm only making a confidence statement. I'm not saying that I'm absolutely sure.

Q. Let me direct your attention now to the nursing home calculation which is item number seven?

A. Yes.

Q. There the estimate is 259,903,050. Do you see that?

A. Yes.

Q. And the lower limit of the 95 percent confidence interval is a negative 631 million, right?

A. Correct.

Q. Upper limit is positive 1.15 billion, correct?

A. Yes.

Q. Now, again, is the 1.15 billion the true number?

A. I don't know where the true number lies or what it exactly is.

Q. Other the negative 631 million is not the true number, correct?

A. Again, I don't know what the true number is.

Q. To properly interpret this confidence interval, we would say that if we were to repeatedly sample NMES, then we would get numbers that had an upper limit of approximately 1.1 billion and a lower limit

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of negative 631 million, correct?
MR. GARNICK: Objection to form.
THE WITNESS: What we interpret this as that we could certainly get numbers larger than that or smaller in the negative direction than that. But we are roughly 95 percent confident that the truth lies somewhere in between, or another way to interpret it is -- and this is to say whether or not if we were to resample this whether or not the answer would bounce around a lot. And if the answer is yes, that's indicated by a wide confidence interval, that means that it's a highly unreliable number, that it might simply be due to random sampling error.

If that interval was very narrow, it would give me a lot of confidence and the estimate would say that, well, yeah, had I done this again, I would be pretty certain it would fall in this narrow range. It did not move around a lot. That gives me a higher confidence in the estimate. Of course, you never resample, but it's a check, right, of whether or not you have a reliable estimate.

BY MR. HAMLIN:

Q. The point is you never do resample, right?

A. No, but you want to have a check of the reliability, and if it's unreliable, then you should

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not trust the number.
Q. Now, is it your testimony that the only check of reliability on the plaintiffs' statistical model is 95 percent confidence interval test?
A. Well, that's standard check and again, the State of Minnesota uses 95 percent confidence intervals so it's a standard confidence level, but it's not -- although it's used mostly in practice, again, it's -- that number -- you know, value that is -- has any, I want to say, significance, but it certainly could be something else. But that's typically what economists use and that's, again, what, for example, the State of Minnesota uses.

You could reinterpret it in terms of relative errors if you would like. For example, the State of Minnesota would want a relative error of 2.5 percent.
Q. Sir, my question was, is it your testimony that the only check of the reliability of the plaintiffs' model is this 95 percent confidence interval?

MR. GARNICK: Asked and answered.

THE WITNESS: I believe that any other check will be some function of that. Again, although it's standard and many people, including the state, use 95 percent, like I said, there are other numbers that you could use.

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BY MR. HAMLIN:
Q. Is that the only -- so let me ask you this: So it is not the only check of reliability on the plaintiffs' damages model, right?
A. I could break it into two answers. The confidence interval is -- or something that's equivalent to a confidence interval would be a check of the reliabilities. Now, the confidence level -- although standard practice is to use 95 percent in most papers and I've seen it use 95 percent -- the State of Minnesota uses 95 percent. 95 percent isn't some magic number, okay, but that seems to be the standard.
Q. Is the 95 percent confidence interval the only check of reliability on the plaintiffs' statistical model; yes or no.
A. The 95 percent is not necessarily the only one.
Q. Now, you say that -- let's be clear. Turn to page 5 of your report. The first paragraph, first full paragraph in the middle, you say, in other words, due to the uncertainty inherent in the NMES and NHANES samples, ZWM's point estimate of total smoking attributable expenditure of 1.77 billion is not significantly different from zero at the 5 percent significance level. Do you see that?

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A. Yes.
Q. Now, is it your testimony that from 1978 through 1996 no one insured by Blue Cross or receiving Medicaid ever got sick from smoking and had health care expenditures as a result?
A. My testimony is that I don't know that number, and Zeger, Wyant and Miller's estimate is so unreliable that it doesn't inform me much about that number; what the true number is.
Q. Here's my question -- listen to my question. Is it your testimony that from 1978 through 1996 no one on Blue Cross or on Medicaid ever got sick from smoking and had health care expenditures as a result?
A. That's not my testimony.
Q. Now, suppose the president of the University of Minnesota asked you if during the period from 1978 through 1996 did anyone get sick from smoking and have health care expenditures as a result, what would you tell him?
A. I would say that based on -- well, I would ask for lots of money to do a study; but other than that, at least based on the Zeger report, I could not give him a reliable estimate of those costs, assuming, again, that the -- even assuming they've dotted all the I's and crossed all the T's in their model and

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has done everything perfectly just from the -- excuse me -- from the sample example in NHANES and NMES, I would say we can't get a reliable estimate.
Q. Here's the question that the president of the University of Minnesota asks you: During the period from 1978 through 1996 did anyone get sick from smoking and have health care expenditures as a result, what would your answer be?
A. My answer would be intuitively maybe, but from Zeger, Wyant and Miller's report, you can't really tell.
Q. So your answer to the president would be that you just don't know whether anyone during that period got sick from smoking and had health care expenditures as a result; is that right?
A. I don't know for sure. And based on Zeger's study, it doesn't inform me about that question.
Q. Now, to answer the president's question, would you review the Surgeon General's reports on smoking to see if anyone got sick from smoking during that time period?
A. Well, in terms of getting sick, are you saying sick or expenditures? I may review it to determine something about being sick.
Q. So if the president asks you during that time

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period did anyone get sick from smoking what would your answer be?
A. It is likely.
Q. And if he asked you is it likely that money was spent to treat people who are sick what would your answer be?
A. Well, again, illness is typically going to cost some party money, be it the person who actually gets ill or whomever. So in that general sense, the answer would be yes.
Q. And if you were asked specifically about health care expenditures for people on the Medicaid program, you would have -- strike that -- you could not ignore the Medicaid claims data, right?
A. I would want to investigate the Medicaid data.
Q. Similarly, if the question related to people on Blue Cross, you would want to investigate the Blue Cross data, right?
A. To the extent that it would inform me.
Q. Now, do you have any idea how many people on Medicaid had smoking attributable expenditures during the period 1978 through 1996?
A. How are you defining smoking attributable expenditures?
Q. Let me ask you this: Do you have any idea how

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many people on Medicaid had smoking attributable diseases from the period 1978 through 1996?
A. To know how many, I would have to know your definition of smoking attributable diseases.
Q. As defined by Dr. Samet.
A. Well, in that data -- I guess I haven't looked at Medicaid data I don't believe. I'm trying to think. I didn't look at the ICD9's particularly. I just saw what Zeger had reported.
Q. So you yourself haven't done an investigation to make that determination, right?
A. No, not with the Medicaid data and from the state.
Q. Now, Zeger, Wyant and Miller reported that more than 90,000 people during that period had major smoking attributable diseases. Do you have any reason to disagree with that number?
A. They may -- again, not having incorporated potential fraudulent claims and so on and so forth or misdiagnosed disease that maybe resulted in more than whatever their screen was, two or so claims, conditional and all that, I don't have any other information.
Q. And you yourself haven't made that investigation, right?

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A. No.
Q. Now, do you have any specific criticisms of the age or illness screens that Zeger, Miller and Wyant used in their model?
A. Well, I am not probably qualified to answer that in terms of disease.
Q. You would need to confer with an epidemiologist?
A. Correct.
Q. Now, is it your testimony that the smoking attributable expenditures for the state and Blue Cross during the period 1978 to 1996 are less than zero?
A. My testimony is that the statistical analysis done by Zeger, Wyant and Miller is sufficiently unreliable that we cannot with any confidence or reliability reject zero; therefore, it doesn't inform us much at all.
Q. In fact, the only way you can say that, that the state and Blue Cross damages are not significantly different from zero, is if you ignore prior information from the Surgeon General's report, the cost of treating smoking-related disease from the American Heart Association and other sources, correct?
A. I'm just commenting on the Zeger study and how

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their study informs us.
Q. You're not making any comment about any prior information about smoking and disease or prior information about the costs of treating smoking-related disease, right?
A. I am just commenting on Zeger's statistical model and the estimates derived from that.
Q. And you're not commenting or taking into account any prior information that deals with smoking and disease or the costs of treating smoking-related disease, right?
A. I'm only commenting on their model, so I guess I've answered that, whatever that entails.
Q. Well, in commenting on their model did you take into account prior information on smoking and disease and the costs of treating smoking-related diseases?
A. I am just commenting on the statistical aspects of their model.
Q. So you are not commenting on any prior information about smoking and disease or the costs of smoking-related disease, right?
A. Only to the extent that it affects their statistical model. I'm commenting on the statistical properties of their model and the construction of their model.

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Q. Well, are you making any specific comment about the Surgeon General's reports?
A. No.
Q. Are you making any specific comment about the report of the American Heart Association that smoking-related costs total $50 billion a year?
A. Again, I have not reviewed that in detail.
Q. So you're not making any comment on that, right?
A. No.
Q. What, if any, prior information are you taking into account in terms of commenting on the Zeger, Wyant, Miller model?
A. Prior information is just my prior knowledge and experience in statistics.
Q. You are commenting solely as a statistician, correct?
A. Correct.
Q. Now, you're not asking the jury to rule out prior information about smoking and disease or the costs of smoking-related disease in reaching an opinion about whether the state and Blue Cross incurred smoking attributable costs in this case, right?
MR. GARNICK: Objection to form.
THE WITNESS: I'm not asking the jury

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to do anything.
BY MR. HAMLIN:
Q. But you're not asking the jury to ignore that prior information, right?
MR. GARNICK: Objection to form.
THE WITNESS: I'm not asking the jury to do anything.
BY MR. HAMLIN:
Q. You don't have any expertise to make judgements about the validity of the Surgeon General's findings of smoking and disease, right?
A. Again, I have not reviewed it in sufficient detail.
Q. Do you have expertise to make judgements about the validity of the Surgeon General's findings regarding smoking and disease?
A. Well, to the extent that there is problems with the statistical models that they employed, I would be qualified to comment, but, again, I haven't analyzed those statistical models in detail.
Q. Do you claim to be an epidemiologist?
A. No.
Q. And do you -- have you ever studied the relationship of smoking and disease?
A. No.

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Q. Is it your opinion that during the period 1978 through 1996 the state and Blue Cross spent no money to treat smoking attributable diseases?
A. Again, my opinion revolves around Zeger's estimates.
Q. So that's not --
A. And my opinion is, again, that their estimates are so unreliable, in addition to having -- that's assuming that their model is correct. I have other problems with the model itself. But even if you assume that the model is right, the data that they've relied upon is such that the estimates are so unreliable that it doesn't inform us at all, or to any -- to a suitable degree of confidence as to what the actual damages are.
Q. Put the Zeger, Wyant, Miller model aside for the purposes of this question. Is it your testimony that the state and Blue Cross spent no money to treat smoking attributable diseases during the period 1978 through 1996?
MR. GARNICK: Asked and answered.
THE WITNESS: Well, I think I've answered that, but, again, it's -- that's not my testimony because I'm asked to comment on the Zeger model so my testimony has to do with the Zeger model.

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BY MR. HAMLIN:
Q. So you're not saying that the state and Blue Cross didn't spend any money to treat these diseases, right?
A. I'm saying that the statistical estimates done by Zeger do not inform us to a suitable degree of confidence as to what those expenditures are.
MR. HAMLIN: Do you want to take a break?
(Recess taken.)
MR. GARNICK: I just want to clarify for the record, I believe this is clear, but that Dr. McCall's opinions may include opinions concerning the testimony of Drs. Zeger and Wyant that relate to Dr. McCall's opinions as expressed, and Dr. McCall's opinions -- Dr. McCall, in support of his opinions, may rely on materials identified in this deposition such as the Minnesota regulation and the literature that he reviewed that was identified at the beginning of this deposition.
Finally, Dr. McCall may rely upon any of the literature specifically identified and relied upon by Drs. Samet, Zeger or Wyant during their trial testimony that Dr. McCall has read.
BY MR. HAMLIN:

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Q. Dr. McCall, your counsel said you may testify about Dr. Wyant, Zeger, and I believe it was Samet's testimony, that may relate to your opinions; is that your understanding?
A. Yes.
Q. What opinions do you have about the testimony of Dr. Wyant as it relates to your opinion?
A. At this time, all I can say or that I remember is the exclusion of the under 60 and over 90 group, and also some discussion having to do with my analysis of 19- to 34-year-olds. There may be more, but at this time that's all I remember.
Q. What specifically did Dr. Wyant say about 19- to 34-year-olds that you plan to comment on?
A. I think in many cases -- and also it might have to do with the nursing home recalculation, which I think was before that, came some statements about 94-year-old women law of averages. So I may comment on those sorts of statements.
Q. What comments do you have on the 94-year-old women and the law of averages?
A. Well, the one thing, and I think I mentioned in my report is, that Zeger -- well, there is two issues, reliability and validity, but in terms of reliability, the jackknife in principle recalculates

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the model by throwing out individuals in the sample, and that makes the calculation of the relative error or confidence of what you want to talk about.
If you threw out one individual and you get a huge or large change in your estimate simply by excluding one individual, that is an indication that the estimate is unreliable and that, you know, appealing to the law of large numbers is inappropriate or the law of averages.
Q. Have you ever actually examined the Medicaid data supplied by the state in this case?
A. Examined the Medicaid data? I have looked at it at various times; calculating age distributions, some demographics. In particular, I think -- well, I calculated it with respect to different types of expenditures and stuff like that early on.
Q. Do you have any comments about any of Dr. Zeger's testimony as it relates to your opinions?
A. At this point I'm trying to recall exactly -- Zeger had less to say about things. I think it was mostly Wyant, but I'm not 100 percent sure.
Q. So nothing comes to mind?
A. Not off the top of my head.
Q. Do you have any comments about Dr. Samet's testimony as it relates to your opinions?

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A. Only that when asked about diminished health, he specifically said that -- or mentioned that smoking was not -- I think he said a cause, but I'm not exactly sure what the exact word was. But he was talking about the relationship between smoking and various types of diseases, for example, epilepsy and those types of conditions which I had used in my analysis.

I don't know if he was specifically commenting on my analysis, but I will make use of I guess some of his epidemiological judgements I guess. It relates to my analysis, but I don't know directly --

Q. What epidemiological judgements are you referring to?

A. For example, when asked about various diseases, epilepsy, Alzheimer's, Parkinson, injuries of other sorts of -- I don't remember all of them entirely, but he was asked of the relationship between smoking and those types of illnesses.

Q. What do you recall his testimony to be?

A. I recall that, for example, with Parkinson and Alzheimer's there were some statements to the effect that -- actually there is evidence that smokers may have lower incidence, and, therefore, there is this whole debate about the relationship between smoking

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and cost. It's still an open debate, for example, of Wakeman, Schweitzer call into question where you could say smoking and disease, but that doesn't necessarily apply to smoking and cost.

And for nursing home, for example, there is -- certain diseases that put you in nursing homes, potential that smoking may increase the incidence of some of those diseases, but it may also be that smoking decreases the incidence; therefore, it's an open question whether, in fact, there is an increase in nursing home costs due to smoking.

Q. What diseases does smoking decrease the incidence of --

A. Well --

Q. -- in your opinion?

A. I'm just relying on what was said, and some of the papers that I looked at that were referred to by Samet regarding Alzheimer's and Parkinson's -- and there were several studies. I can't name them off the top of my head, but there is some evidence that age standardizing, there is a reduced risk of Parkinson and Alzheimer's in smoking, and I think these were papers that were provided in -- Samet did this huge study with lots and lots of papers. So I think they were --

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Q. Now, is it your testimony that Dr. Samet said that smoking did not cause diminished health?
A. No. My testimony was -- excuse me. My -- what I'm saying is that there were certain diseases that enter into Zeger's diminished health model, and when asked about whether smoking was related to those particular diseases -- not in general diminished health, but those particular diseases, he said no, that they weren't related.
Q. And what diseases were those?
A. Alzheimer's and Parkinson's and then epilepsy. I think appendicitis. I forget the list, but I think there is like ten or twelve or something of that nature.
Q. Are you relying on any other testimony by Dr. Samet in relation to your opinion?
A. Well, again, you know, some of his comments that he made regarding the fact that the relative risk factor may be population specific, that is relevant to my validity checks; for example, both the nursing home model and the diminished health model.
Q. Why is that relevant to your validity check?
A. Well, it raises the issue that the relative risk -- let's -- go to my report and pick which model you want to choose first. But, say, in diminished

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health, the estimates are derived from a mixture of essentially from an entire population of individuals, a national sample. There are some limited controls for various characteristics, but that raises the point as far as the question that perhaps the estimates depend on, for example, whether you're on Medicaid.

And maybe you should look at Medicaid specifically -- a Medicaid population specifically when getting estimates at the relationship between smoking and expenditures.

And the same thing for nursing home; the nursing home data -- the NHANES is a national sample that contains both non-Medicaid and Medicaid, and for that sample in particular, only Medicaid costs are included in the damages here baits the question of whether or not the relative risks depends on whether you're Medicaid or not -- in the Medicaid population or not, and whether you focused on that, you would get different estimates.

Q. Have you studied the nursing home population in Minnesota over the period of 1978 through 1996?

A. I've looked at, for example, the case mixed data, so in that sense I've looked at some nursing home data.

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Q. What's in the case mix data?
A. Measures of disability or care levels. There is ICD9 codes listing the type of conditions that the patient has.
Q. Have you compared that data to national data on nursing homes?
A. No, but what I did do was within the -- and I guess this would be in a previous report. I looked at Medicaid and non-Medicaid within the nemesis when they have their institutional population survey to report, whether they have Medicaid or not Medicaid, and I looked at the differences between those two populations, and they were substantial; in particular, with respect to some of the illnesses that were mentioned by Dr. Samet.
Q. Well, did you do any comparison of the nursing home population in Minnesota to any nursing home population nationally?
A. No direct comparison I don't believe.
Q. Is there something different about the Minnesota nursing home population that makes it somehow unique?
A. Well, certainly the nursing home population in Minnesota differs from that, say, in New York.
Q. Have you made that study?
A. No, but just demographics; the ethnic

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distributions are different. So I haven't made the study, but --
Q. So you don't know how the ethnic distributions may affect disease, right?
A. No, but I do know the ethnic distributions between Medicaid and non-Medicaid at a national level at least differ.
Q. And do you know how at a national level ethnic distributions affect disease?
A. No.
Q. Now, have you compared the Minnesota Medicaid population to a national Medicaid population?
A. I believe I haven't compared it directly, no.
Q. Let's go back to Table 5 of your report. I want to direct your attention to the column marked Public Aid and Blue Cross Blue Shield. Do you see that?
A. Yes.
Q. You've created or broken out what appears to be a number of sub-groups. You've got specifically item number 2, diminished health pure, right?
A. Correct.
Q. Number 3, diminished health mixed, right?
A. Right.
Q. Item number 4 is defined smoking-related, and that's broken down into refined lung cancer and

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refined CHD, right?
A. Right.
Q. And then you have nursing home?
A. Correct.
Q. Now, can you take a piece of paper and just put down the upper confidence -- the upper limit for the 95 percent confidence interval limit for diminished health pure?
A. This 866 number? 95 you said?
Q. Yes. Just use the first three numbers, 866. And then the upper limit for diminished health mixed, it looks like it's 1.915 billion. And then the upper limit for smoking-related refined is 1.0 billion. Would you put that down?
A. (Witness complies.)
Q. Then if you could also put down the upper limit for nursing home, which is 1.15 billion. Do you have those?
A. Do you mind if I round?
Q. Please round. So the number you get is 4.95 billion?
A. Right, approximately.
Q. Now, this is basically the sum of the upper limits of the 95 percent confidence interval for the combined Public Aid and Blue Cross Blue Shield models as broken down by you?

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A. Yeah, as broken down.
Q. And this 4.95 is within the 95 percent confidence interval, right?
A. I don't know what that 4.95 means.
Q. Well, it is the sum?
A. I know that it is the sum of those four numbers with rounding error.
Q. And it is the sum of the upper limits?
A. Correct.
Q. And you know the plaintiffs are asking for $1.7 billion, right?
A. Yes.
Q. I want to show you what has been marked as Trial Exhibit 26046, which is a book entitled The Evolving Role of Statistical Assessments as Evidence in the Courts.
A. Correct.
Q. The editor is Stephen E. Fienberg. Do you see that?
A. Yes.
Q. Are you familiar with Professor Steinberg?
A. Fienberg?
Q. Fienberg.
A. I think you said Steinberg.
Q. Fienberg.

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A. Yeah, I've heard of him. I've never met him, but I've certainly heard of him.
Q. Now, he is at the Department of Statistics and of Social and Decision Sciences at Carnegie Mellon; is that right?
A. I'm not 100 percent sure, but I'll take your word for it.
Q. Why don't you turn to -- turn to page -- the title of that is Panel on Statistical Assessments as Evidence in Courts. Do you see that?
A. Yes.
Q. Do you see Stephen E. Fienberg is listed as cochair?
A. Yes.
Q. And there he's listed as with the Department of Statistics and Social and Decision Sciences at Carnegie Mellon?
A. Yes.
Q. Is Professor Fienberg eminent in the field of statistics?
A. I believe so.
Q. He's well regarded and well respected?
A. I believe so.
Q. Do you know Samuel Krislov?
A. No.

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Q. Do you see that he's at the Department of Political Science at the University of Minnesota?
A. Yeah.
Q. But you're not familiar with him?
A. No.
Q. Are you familiar with James J. Heckman, Department of Economics, University of Chicago?
A. Yes, I've actually talked with him.
Q. Is he eminent in his field?
A. Yes.
Q. Have you talked to him about this case?
A. No. I've talked to him once in my life. He asked for some papers that I did.
Q. Are you familiar with Paul Meier?
A. Yes.
Q. He's at the Department of Statistics at the University of Chicago; is that right?
A. Yes.
Q. Is he also eminent in his field?
A. Yes.
Q. Do you know Judge Jack Weinstein?
A. No.
Q. Do you know who he is?
A. I may have recalled the name briefly, but I don't know much about him.

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Q. Do you know William G. Hunter?
A. No, not off the top of my head. There it is. No.
Q. Let me direct your attention to the page that bears the title Committee on National Statistics. Do you see that?
A. Yes.
Q. Do you know James O. Berger?
A. No. From -- I may have seen the name Berger, but I don't recall when or where. I'm not real familiar with him. To the best of my knowledge, I don't know where I've seen him.
Q. Do you know if he's an eminent statistician?
A. I have no clue, but it looks like he's at Purdue, so --
Q. Is that a well-regarded Department of Statistics?
A. That's reasonable.
Q. What is reasonable?
A. How do you define well regarded? Top three? It's probably in the top 40 or 50.
Q. Do you know Seymour Geisser at the University of Minnesota?
A. I've seen the name. I don't know him personally.

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Q. He's at the School of Statistics; is that right?
A. Right.
Q. Is he eminent in his field?
A. I believe so.
Q. Do you know Jerry Hausman?
A. Yes, I've actually corresponded with him.
Q. He's at MIT; is that right?
A. Yes.
Q. Is he also eminent in his field?
A. Yes.
Q. Have you spoken with him?
A. Actually he -- well, he corresponded with me. I sent him a paper that was in a related field to what he was doing and he sent me some comments back.
Q. I'm sorry?
A. He sent back some comments on the paper.
Q. And did you incorporate those comments into your paper?
A. I don't think so. They were either -- well, no.
Q. Do you know John W. Pratt, Graduate School of Business, Harvard?
A. Yes. I don't know him personally, but I know his name.
Q. Is he also eminent in his field?
A. Yes.

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Q. Do you know Jane Menken, the Office of Population Research, Princeton University?
A. I know who she is. I don't know her personally. I may have read some articles.
Q. Is she also eminent in her field?
A. I believe so, yes.
Q. Do you know James -- S. James Press, Department of Statistics, University of California Riverside?
A. That's Jim Press is who I think it is. I know him and of him, but actually his father -- my father is friends with him.
Q. Is Professor Press eminent in his field?
A. I believe so.
Q. Do you know Kenneth Wachter, the Department of Statistics, University of California Berkeley?
A. I know of him.
Q. Is he also eminent in his field?
A. I believe so.
Q. Do you know Graham Kalton at the Institute of Social Research, University of Michigan?
A. Where is that?
Q. K-a-l-t-o-n?
A. I'm not familiar with that name.
Q. Are you familiar with Nan M. Laird, Department of Biostatistics at the Harvard School of Public

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Health?
A. Yes.
Q. And how are you familiar with Professor Laird?
A. I've read various papers that he's done on statistics. I don't know him personally.
Q. Is he eminent in his field?
A. Yes.
Q. Now, are you familiar with the Committee on National Statistics?
A. No, not other than having looked at this previously, but not before this case.
Q. So you've never read any other publications by the Committee on National Statistics?
A. No.
Q. Let me turn your attention to what I call the notice page. It's a couple of pages back here. It starts out Notice. Do you see that?
A. Yes.
Q. It states: The project that is the subject of this report was approved by the Governing Board of the National Research Council whose members are drawn from the councils of the National Academy of Sciences, National Academy of Engineering and the Institute of Medicine. The members of the committee responsible for the report were chosen for their

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special competences and with regard for appropriate balance. Do you see that?
A. Yeah.
Q. Are you familiar with the National Research Council?
A. Yes.
Q. Are you familiar with the National Science Foundation?
A. Yes.
Q. Are you also familiar with the National Academy of Sciences?
A. Yes.
Q. Are you familiar with the National Academy of Engineering?
A. I've heard the name, but I'm not familiar with it.
Q. Are you familiar with the Institute of Medicine?
A. Not really.
Q. National Institute of Medicine. Is the National Research Council a governmental body designed to advise Congress?
A. I believe so.
Q. Is the National Academy of Sciences a governmental body designed to advise Congress?
A. I'm not exactly sure what you mean by

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"governmental body" type. I'm sure it advises Congress of various things. I don't know how it gets --
Q. Have you -- let me does ask you this: Are publications of the National Research Council considered to be authoritative in the field of statistics?
A. I have no reason to dispute that.
Q. Are publications of the National Academy of Sciences considered to be authoritative in the field of statistics?
A. I believe so.
Q. Have you ever received any grants from the National Research Council?
A. I don't believe so.
Q. Now, do you regard this book by Fienberg entitled Evolving Role of Statistical Assessments as Evidenced in the Courts as authoritative on that subject?
A. Well, I believe it's the opinions of those on the board that were asked to make judgements. I don't know necessarily what you would define as authoritative.
Q. Well, they are certainly the -- strike that. The people that we have identified are certainly

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authorities in their field?
A. That's true.
Q. And here they're speaking essentially as a group, right?
A. That's true.
Q. And they're speaking authoritatively as authoritative spokespeople in their fields, right?
A. Well, yeah. I mean, they're making statements based on their beliefs and maybe discussions.
Q. And as you indicated, these people are in many cases eminent statisticians and eminent economists, right?
A. Correct.
Q. Now, do you have any reason to believe that their statements are not reliable?
A. Well, I'm just saying that certain statements may still be subject to debate. I've read other edited volumes by Fienberg that have papers in it that -- I don't know if they necessarily disagree, but they have slightly different interpretations of these methods as opposed to --
Q. Do you have any reason to believe that this volume, this book, is not authoritative in this area of statistical assessments as evidence in the courts?
A. Authoritative to date? When was the book --

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Q. I believe the book was published in it looks like 1989.
A. I would guess relative to that date for their knowledge of that time, computing resources at that time.
Q. That it was authoritative at the time?
A. Right.
Q. Let me direct your attention to page 114. Before we go to page 114, can you identify for me any book or work by any -- strike that. Can you identify any book or work by the National Committee on Statistics that has superseded the book by Fienberg?
A. Not as of this time.
Q. Can you identify any book or work by the panel on statistical assessment as evidence in the courts that has superseded this volume?
A. Again, not at this time.
Q. Have you done a search?
A. No.
Q. I mean, specifically have you done a search to see whether or not there has been any work that has superseded or come after this particular book that deals with the same subject matter?
A. Again, I don't remember the exact dates of all of these various papers that I've looked at. I'm

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pretty sure there are some that have dealt with statistical assessments of the court published in various journals after that date, but I can't remember the exact ones off the top of my head.
Q. And were those papers critical of Fienberg's book?
A. Not to my recollection.
Q. Any of those papers state that Fienberg's book is no longer authoritative in the field?
A. Not to my recollection.
Q. When was the last time that you looked at any of those articles or papers?
A. Well, I looked at -- I actually looked at one probably last night, although I just looked at it. I actually read thoroughly, not probably in the last month or two, any of these other --
Q. What article did you look at last night?
A. There is a book by Morris Degroot.
Q. How do you spell that?
A. He's at Carnegie Mellon, D-e-g-r-o-o-t, and Fienberg, and there may have been one other editor from the University of Chicago - I can't recall off the top of my head - had a series of articles published called Statistics in the Law. And there is a chapter on confidence intervals there by -- the

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name escapes me, but he's at Stanford. I forget his head off the top of my head. Somebody. It's towards the back of the book, and he talks about confidence intervals.
Q. So this is a book that you're referring to?
A. Yeah, that particular article is in the book.
Q. And the book is entitled Statistics on Law?
A. It's either Statistics of Law or Statistics and Law. I can't remember. I can see the cover of the book, but --
Q. Who is the editor of that book?
A. Well, that's the Fienberg Group, and I believe there is somebody else -- there are two editors. There is I believe one other.
Q. When was the book published?
A. I'm not -- it escapes me. I don't know.
Q. Was it after the Evolving Role of Statistical Assessments as Evidence in the Courts?
A. I don't know.
Q. Was this furnished to you by counsel?
A. No. I had bought that book a couple of years ago.
Q. And have you previously relied on that book in cases in which you have testified as an expert?
A. I don't think so. I just remember maybe after

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some cases I've sought and thought it was interesting and started reading various chapters of it. I don't think I read every single chapter. Some of the chapters are like on DNA testimony and stuff like that.
Q. Are you saying that there is a chapter on confidence intervals?
A. I believe so.
Q. And who is the author of that chapter, if you know?
A. Solomon strikes me as the name, but I don't know for a fact -- I remember Stanford better than I remember the name.
Q. So I take it that you're not familiar with this particular author?
A. I believe he's in the stat. department at Stanford. Again, I read so many articles, I can't remember all of the names. But I can't recall any articles I've read by him.
Q. Would you classify him as eminent in his field?
A. I believe so if he's at Stanford.
Q. And can you tell me basically the gist of his article as it relates to confidence intervals?
A. Well, he was talking about damage estimates and confidence intervals, and in particular, I think he

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was recommending or suggesting -- I can't remember the exact words he used -- something about a 99 percent confidence interval, and then taking the lower number.
Q. Have you ever followed that method in any of the cases in which you've testified?
A. I'm not sure if I've actually done computation since reading that, so the answer is probably no.
Q. Did you calculate a 99 percent confidence interval in this case?
A. Well, no, because I was more relying on sort of both convention and economics, and also the laws or rules in the State of Minnesota which tend to specify 95 percent. That's more conventional and, in fact, the State of Minnesota specifies that in its rules. So I -- I mean, I could easily do it. Once you've got the relative there, you can calculate any confidence you would like. But in this table I didn't.
Q. And as of today's date you haven't calculated a 99 percent confidence interval for the plaintiffs' damages, right?
A. I don't believe so.
Q. Now, are you stating that the Minnesota rule that you referred to refers to damage estimates and

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court cases?
A. It refers to, according to my recollection, having to do with using a random sample for extrapolation in terms of health care payments, and I haven't read the whole thing clearly so I don't know if it has to do with fraud or some sort of overpayments or inappropriate payments.
So -- in fact, again, I read also other documents where HCFA was claiming that it overpaid the State of Minnesota based on a random sample with relative errors that were in the neighborhood of 20 percent and somebody from the Department of Human Services complaining that that was much too large or too unreliable.
Q. My question was, are you saying that that rule applies to damage estimates in court cases?
A. What I'm saying is that -- again, I could compute any confidence interval that I'd like. Standard is and is used in Minnesota, convention is to do 95 percent confidence interval. That's what I'm saying. I'm not necessarily saying that it's a -- some sort of specified law.
Q. Let's go back to --
A. At least I don't know.
Q. Let's go back to Trial Exhibit 26046, and,

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again, I want you to look at page 114. I want to direct your attention to the section marked damages 3.3.5. Do you see that?
A. Yes.
Q. Let me direct your attention to the sentence that begins, experts typically. Do you see that?
A. Yes.
Q. It says: Experts typically provide confidence intervals to go along with the point estimates that they obtain. Such confidence intervals may be large, but since the issue of violation has been settled, it seems reasonable to allow the courts with the expert's help to obtain the best point estimate possible, even if the zero damages estimate is within a reasonable confidence interval. Do you see that?
A. Yes.
Q. Do you have any basis in the literature for disagreeing with that statement?
A. Again, I'm unclear how they define reasonable. That seems to be sort of context specific. Also, that I think this applies to cases where you're assured that the estimates are valid or that there is no non-random sampling error.
And so those things -- and I mean in the context of this question make it unclear what they mean.

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Q. So you --
A. I understand what it means, but there is some ambiguity within the statement and within the context. The first issue is whether or not best estimate, which I take to mean that there is no non-random sampling error, and what they mean by reasonable confidence interval is unclear, the word reasonable, whether -- what level that actually is.
Q. So it could be a 95 percent confidence interval?
A. It could be.
Q. Or it could be something other than a 95 percent confidence interval, right?
A. It could be.
Q. It would depend on the case, right?
A. I guess I'm unclear what they mean by the reasonable. I don't know if it's context specific.
Q. Well, taken as written, do you agree with the statement?
A. The problem is, given the definition of reasonable, you can come up with a reasonable number of confidence level such that it would make sense. The question is, what that number is.
Q. Well, let's assume that reasonable means 95 percent confidence interval. Do you agree with the statement?

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A. I guess it would depend on context.
Q. So you don't disagree with the statement? You're saying it just depends on the specific case, right?
A. How you would define -- how reasonable is defined and also that -- you know the first part of the statement, this notion of best part estimate is important.
So if you don't have what is considered the best point estimate, then I think what follows is irrelevant.
Q. Suppose you do have the best point estimate, and suppose that the reasonable confidence interval is defined as 95 percent, which is, according to your own testimony, a standard convention, right? If that's the case, do you agree with the statement?
A. Well, given this notion of you're defining for me what reasonable is, I think that that wouldn't be necessarily inappropriate. Again, to be 100 percent sure, it would be, again -- I would have to think about a particular context.
So it would be hard for me to judge without evaluating something and first concluding that they have the best point estimate, and then relative to that, which might be specific to the problem, what

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you might consider a reasonable confidence interval.
Q. Well, I'm asking you to assume that you have the best point estimate, and that the confidence interval is the 95 percent confidence interval. Now, given those assumptions, do you agree with that statement?
A. If you assume, again, that 95 percent is reasonable, right, then I will. And assuming that -- but again, that's a big if, and, again, assuming that's --
Q. And you say, again, assuming that you have the best point estimate possible?
A. Right.
Q. Now, have you ever provided a damages estimate in a litigation case without confidence intervals?
A. I believe so.
Q. Was that an employment discrimination case?
A. Yes.
Q. And why didn't you provide confidence intervals in that case?
A. The main reason is typically -- well, at least the cases I've worked on to date, the ones where I actually was required to give a damage estimate, either there was no time or -- which is actually equivalent, the cost would have been large relative to the size of the case to actually calculate an

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appropriate confidence interval. They usually only involved one plaintiff and the damages were not enormous.

So usually it has to do with time or money. And in certain cases, actually the amount of - quote - unquote - estimation that you can use is not very much, assuming, you know, certain things. It's not a complicated statistical model, but for the most part it's time and money that prevent it from doing that.

Q. Now, with respect to the nursing home model, the data used in that model is the NHANES data and the BRFSS data and the Medicaid claims data, right?

A. To arrive at the final estimate, they need all -- what was the second data set? BRFSS? Yes. They need it all.

Q. Now, let me turn to or direct you to turn to Table 12. Now, this is a table that you prepared; is that right?

A. Yes.

Q. And the title is primary diseases by age, Minnesota case mix 1986 to 1991, right?

A. Yes.

Q. Now, what do you mean by primary diseases?

A. Primary diseases are just -- I think I define them there with the ICD9 codes.

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Q. You define them where? On the table?
A. Yeah. So, for example, I broke out the neoplasms contained in ZWM's major smoking attributable diseases, and then the respiratory type diseases, and then ZWM circulatory system diseases, and then other smoking-related diseases, which is sort of a catch-all. I believe ulcer type diseases, ZWM, and then for the rest of the illnesses that are not in the major smoking-related diseases are actually grouped here, which I believe are the groupings that typically are used as sort of title heads in the ICD9 codes or at least some version of it.
Q. Now, in pulling together this table, specifically using the ICD9 codes, did you consult with an epidemiologist?
A. No. I just, again, broke it out by the major categories that were listed in the -- I don't think it was the whole ICD9 book, but whatever the pamphlet was, that sort of summarized them or grouped them in a less fine level, coarser level.
Q. Prior to this case, have you ever had occasion to use the ICD9 code manual?
A. I don't believe so.
Q. Now, the information in Table 12 comes from the

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Minnesota case mix; is that right?
A. Yes.
Q. Can you tell me what the Minnesota case mix is?
A. Basically I believe that all nursing homes in Minnesota are required to fill out certain forms or provide certain information about their patients, especially if those hospitals want Medicaid reimbursement of some sort.

Now, what I looked at was -- I believe there is an annual -- in the Minnesota case mix they may have several reports, but one of the reports is what they would call an annual report. They have some acronym, but I can't remember the name off the top of my head.

And I just looked at those annual reports, which I think are typically filled out by nurses, and they categorize things; what they would call adjustment to daily living; how well are people doing in terms of, you know, toileting, or can they eat by themselves, or do they need help and all that sort of stuff. Plus it lists what sort of diseases in terms of ICD9 codes, what types of conditions they have.

Q. So the Minnesota case mix refers to nursing home residents in Minnesota?
A. Yes.
Q. And that was the basis for this table; is that

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right?
A. Right.
Q. You didn't use any NHANES data?
A. Not on this table. The only other thing I used I believe is just, again, where I say ZWM. Those are from their particular classifications, so that's the -- actually that probably comes from Samet originally. Zeger relied on Samet.
Q. Now, you say in your report that most nursing home residents are women and you give a percentage of 72.5 percent. Do you recall that?
A. In the table here, or I actually just said it?
Q. I think you made that statement.
A. Yeah, I think it's in Table 10, 72.5 percent.
Q. Now, this too is based on the Minnesota case mix data?
A. Correct.
Q. That is Table 10?
A. Yes.
Q. I believe you also make the statement that most nursing home residents are 85 and older, and then you give a percentage of 55.2 percent. Do you recall that?
A. Yes.
Q. Is that also based on the Minnesota case mix

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data?
A. Right. It's just adding up the 44.8, and the 10.4 percent numbers in Table 10.
Q. So if you look at Table 10 and go to the column marked both genders, and then add up the ages of 85 plus, you get 55.2, right?
A. I believe so.
Q. Let's go back then to Table 12. I want to direct your attention to the column marked 85 to 94.
A. Okay.
Q. Now, 85 to 94, that's the age group, right?
A. Right.
Q. And then if you could go to item number 3, that's circulatory system. Do you see that?
A. Yes.
Q. How do you define circulatory system?
A. I believe those are Appendix B. Those are the ICD9 codes. Those are I think from -- I mean, I grouped them slightly differently than maybe Zeger did, but those are the ICD9 codes from I guess Samet's major smoking attributable diseases.
Q. So you're now referring to Appendix B, which is entitled ZWM's major smoking attributable disease, right?
A. Right. So that shows how I defined those four

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things in Table 12.
Q. You've got four columns, one of which is circulatory system, right?
A. Right.
Q. And then you've got a group of numbers under them and those are ICD9 codes?
A. Correct.
Q. And those you obtained from Samet?
A. Yes.
Q. And in defining circulatory system in Table 12, item 3, you are referring to those ICD9 code numbers in Appendix B?
A. Correct.
Q. Now, I want you to assume that 20 percent of all coronary heart disease deaths are caused by smoking. Are you with me on that?
A. I'm with your assumption.
Q. Do you know the percentage of coronary heart disease deaths that are caused by smoking in the United States?
A. I don't have any estimate.
Q. Have you ever investigated that particular issue?
A. I have investigated deaths of heart attacks, but not in relationship to smoking.

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Q. What did you find with respect to deaths due to heart attack?
A. There was more of them on Mondays at work.
Q. Let's go back to my assumption that 20 percent of all coronary heart disease deaths are caused by smoking. What is 20 percent of 21.4 percent which is the percentage that you've listed here for circulatory system diseases for 85- to 94-year-olds on Table 12.
MR. GARNICK: Object to form.
THE WITNESS: If you want me to calculate, I'll do a little bit of rambling of what 20 percent of 20 percent is and the answer is 4 percent.
BY MR. HAMLIN:
Q. Do you see what I'm referring to, the 21.4 percent?
A. I see that number.
Q. What does that 21.4 percent refer to as it relates to circulatory system?
A. It doesn't refer to deaths.
Q. No. I realize that, but does it refer to circulatory system illnesses or conditions?
A. It just -- they list that their primary condition fall into those groups of ICD9 codes for

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that particular age group.
Q. What do you understand the term "primary condition" to mean?
A. That when they are asked to fill out the form, they are asked what is their primary condition and then they -- some doctor or nurse - I don't know if the nurse is reading the patient's chart or not - is then filling that in, and then they are asked additional conditions, and then they fill those in after that.
Q. So 21.4 percent of nursing home residents, 84 to 94 filled in circulatory system condition as their primary condition in the Minnesota case mix data, right?
A. I believe so, in this data that I have.
Q. Did you yourself make that calculation or was that calculation already made in the data that you reviewed?
A. That was -- the calculation was made by me, I mean, via -- I used a program to do it. I didn't calculate it by hand.
Q. But the data that you were presented with didn't have that percentage number in it, right?
A. I don't believe so, no, I didn't see it.
Q. You collected those conditions and then

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calculated the percentage, right?
A. Right.
Q. So 20 percent of 21.4 percent is approximately 4 percent, right?
A. Approximately, if you do that calculation.
Q. And that's for one age group, 85 to 94-year-olds within the circulatory system category, right?
A. I don't know what you're referring to. That's just a calculation.
Q. Well, what I'm asking you to do is take 20 percent of the 21.4 percent that you have calculated here for 85 to 94-year-olds with circulatory system conditions.
A. All I'm saying is that were correct in that 20 percent of 20 percent is 4 percent. Mathematically that's true. To me it doesn't mean anything.
Q. But if you take that percentage, which is 4 percent, I've only asked you to do the calculation with respect to one number here and that's 21.4 percent, right?
A. You've asked me to calculate it, right. That's all I've done.
Q. And I've not asked you to calculate the percentage or any percentage of neoplasms, right?
A. You asked me to calculate numbers. I don't know

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where you -- you can come up with numbers wherever you want and I'll calculate them if you like.
Q. Well, is it your understanding -- let me ask you this: Do you know what percentage of the nursing home costs during the period 1978 through 1996 the plaintiffs are asking for in terms of damages?
A. Could you repeat that? I was fading out.
Q. Do you know what percentage of nursing home costs during the period 1978 through 1996 the plaintiffs are asking for as damages in this case?
A. I know it's a small number and it's unreliably estimated, but I can't recall off the top of my head the exact number.
Q. I'm not asking you for the point estimate; I'm asking you for the percentage of dollars?
A. Well, that's estimated.
Q. Okay. Do you recall seeing in Dr. Wyant's testimony that it was 3 percent?
A. I couldn't remember which one. There were some small numbers floating around and I don't know if it was 3 or 4 or 6 or 2, but I remember I recall it was a small number and it was unreliably estimated.
Q. And do you now remember that that number is 3 percent after I've refreshed your recollection?
A. I'll take your word for it.

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Q. And you would agree that 3 percent is less than 4 percent, right?
A. I would agree.
Q. Now, let me direct your attention to item number 4, Table 12, other smoking-related disease.
A. Yes.
Q. Can you tell me what ICD9 codes are in that category?
A. Can I look?
Q. Yeah.
A. If you go to the Appendix B, I believe 531, 532, 533 and I believe, although I'm not 100 percent sure, that those have something to do with like ulcers.
Q. So the other smoking-related diseases that you are referring to in item number 4 are listed in the fourth column on Appendix B?
A. Yes.
Q. And you think they have something to do with ulcers?
A. I believe so. These are again within the category of major smoking-related diseases that Samet outlined, and I think they had to do with ulcers. I'm pretty sure, but what type of ulcers, I'm not sure.
Q. In the Minnesota case mix data, did they have

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ICD9 codes listed?
A. Yes.
Q. And Table 12 you've listed basically 17 categories of diseases. How did you choose those 17?
A. Well, the first four I already chose because they were listed by -- well, they contain all the ICD9's listed by Samet I guess originally. And then the last 13, I believe, are just sort of groupings that were on a summary of ICD9 codes when they grouped them according to I guess what they would consider major condition groups or disease groups.
So I just used those, and I believe whenever I ran into a Samet one, I just excluded it because it's already in the other one.
Q. Well, how did you choose those groups?
A. I just relied on the code. These are major groups that were a summary of the ICD's so I just calculated by those, and the only difference was that if one of those ICD9's, say, fell within 11 also was contained in number 3, ZWM major smoking attributable diseases, I didn't want to double count so I didn't put it in there.
So these would be disease of circulatory other than the ZWM, according to this document, which I don't recall the exact document name, but grouped

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them that way.
Q. And did this document call them primary diseases or is that your term?
A. Primary diseases refers -- I guess the primary refers to I guess the fact that it was listed as a primary disease by the nurse. So these categories aren't primary categories.
Q. So did you look then at all of the primary diseases that were listed in the Minnesota case mix and list them all on table 12?
A. There it's listed. Yeah, whatever they put in the first ICD9 response as the primary one. I believe they may have -- I think I listed them all. So I just grouped them according to these code numbers.
Now, there is -- there may be a rare here or there alphanumeric V code or whatever that may have been missed. I can't recall. I didn't remember what the extent of that is.
Q. So what you attempted to do was collect all of the diseases listed as primary by the respondents in the Minnesota case mix --
A. And break them.
Q. -- and break them into these categories?
A. By age and disease group that were defined in

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this manual or whatever.
MR. HAMLIN: Off the record.
(Recess taken.)
BY MR. HAMLIN:
Q. Dr. McCall, I want to refer you once again to Trial Exhibit 26046 which is the Fienberg work. Do you know of any scientific literature published since 1989 that has declared this work by Fienberg to be no longer authoritative or reliable?
A. Currently, I mean, not to my knowledge at this time.
Q. Do you have any reason to believe that Drs. Zeger, Wyant and Miller did not make an effort to present the best possible point estimate of the plaintiffs' damages in accordance with their statistical model?
A. Yes.
Q. What is that?
A. Well, I mean, in terms of the fact that there are a lot of validity issues revolving around their model. We have non-random sampling error and you're not going to have the best estimate.
Q. Are there data bases that they should have looked at in your opinion that they did not?
A. Well, for example, they could have done separate

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analyses on Medicaid within NMES and used that for Medicaid, and done the separate analysis on those with private insurance or whatever the equivalent of the Blue Cross Blue Shield and used that. So they -- I mean, there were, even within that data, different things they could have done.

Q. But my question was, do you know of any data bases that they should have used in your opinion that they did not?

A. I can't think of any right now.

Q. Let me turn your attention to your expert report which is Exhibit 4876, your supplemental report. I want to direct your attention to page 9. That first full paragraph you state that most residents in nursing homes suffer from multiple diseases or conditions, and then you went to Table 13. Could you turn -- first of all, is that right?

A. Yeah, that's what I said.

Q. Could you turn to Table 13? Table 13 is entitled Multiplicity of Chronic Diseases for those with ZWM Smoking-Related Diseases, Minnesota case mix 1986 to 1991.

Again, the data used to prepare this table is the Minnesota case mix data from 1986 to 1991?

A. Correct.

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Q. Item 1 is titled no other. What does that mean?
A. Those would be people who list a primary disease, but then don't list any additional diseases or conditions.
Q. So if we go over to the first column that's marked neoplasms, right?
A. Right.
Q. And there is a 5 percent figure underneath that?
A. Yes.
Q. What is the significance of that 5 percent figure?
A. What that says is that among those who listed a primary disease or had a ICD9 code within the neoplasm definition, according to Zeger, 5 percent of those people listed no further conditions, at least on the records that I examined.
Q. Could you go to the next column, circulatory system?
A. Yes.
Q. There is a percentage there 3.2 percent. What does that mean?
A. Among those who fall into the VWM definition of circulatory system primary conditions or diseases, 3.2 percent of those have no other conditions listed.
Q. This is for the period 1986 through 1991?
A. Yes. The records that were in that period.

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Q. I want to direct your attention to the next column, respiratory system.
A. Okay.
Q. There is a percentage there 4.6 percent, correct?
A. Correct.
Q. What does that mean?
A. Well, it's similar. Among those who list their primary disease as falling into the Zeger -- or Samet definition of respiratory. So those ICD9 codes that I put in Appendix B, after the primary condition, they don't list any further conditions on their record.
Q. And the 4.6 percent is 4.6 percent of the nursing home residents who are or who make up the Minnesota case mix data base from 1986 to 1991?
A. No. The 4.6 percent refers to only those who -- you're looking -- you're subsetting among them. Let's look at all those people whose primary disease within the case mix fell within the respiratory category according to ZWM so that's already a subset. And among those who listed no further condition. So it's not the entire group.
Q. So those who listed respiratory system as a primary condition make up the sub-group, and then 4.6

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percent of that group listed no other disease?
A. Right. The same holds for the other.
Q. And if we go to the next column, other smoking-related disease, the percentage there is 4.7 percent, right?
A. Yes.
Q. And what is the significance of that percentage?
A. It's the same interpretation. Among those whose primary disease is listed in the other smoking-related disease category, for example, the ulcers. I believe those are the ICD9's. Among those individuals, 4.7 percent list no other condition.
Q. How many people were in this first category under neoplasms, do you know? Can you give me a number?
A. In that it's actually -- I don't know the base number, but in terms of percent, you can go back to the other table. It's fairly small.
Q. Do you have any idea as to how many people who listed neoplasms as their primary disease and listed no other?
A. I can't remember the base number, but the -- I think in terms of records, there might have been a couple hundred thousand records, and that's just a rough ballpark guess. And then among those, I guess

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-- well, this -- you'll have to combine the age categories, but I don't know how they fell into each age category, but notice in Table 12, a third of a percent of 65- to 74-year-olds listed neoplasms as their primary disease, so 0.3 percent.

So, again, what I've done in this other table is combined all ages. I don't break out the ages. But among all those who fall into Row 1 in Table 12, then what I ask, okay, there is now room for other conditions to be listed. What listed some of the other conditions, only 5 percent of those had listed no other.

Now, I don't know exactly how much it is, but it's probably not an enormous amount.

Q. I may have asked you this, but did you produce electronic data with your supplemental expert report?

A. Yes. This I believe should be in there. If not, I believe I can get it.

Q. Let's go back to -- strike that. Table 13. Do you define the neoplasms category in the same way that Dr. Samet defines them?

A. In the columns, yes.

Q. So if we wanted to find out which neoplasms you're referring to we would go to Appendix B?

A. For the column entitled neoplasms, the answer is

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yes.
Q. And for the circulatory system conditions we would again go to Appendix B and look under circulatory system to determine the ICD9 code numbers, right?
A. Right. Again, for the columns, I provided the ICD9's for the rows within that table.
Q. But what I'm referring to now are the columns?
A. Right. Yeah. The definition of the columns are to -- these are primary disease and neoplasm as defined in Appendix B, and the same for the other column.
Q. I want to ask you about males, 19 to 34, the diminished health model.
A. Okay.
Q. Let's go to Table 5 first. Now, if you look at number 1, that's diminished health pure plus mix, right?
A. Correct.
Q. And the estimate there is 952,376,948, correct?
A. Right. That's the point estimate.
Q. And that's the plaintiffs' point estimate, right?
A. Correct.
Q. And that is the damages the plaintiffs are

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claiming for the entire diminished health model, both pure and mixed, right?
A. And Public Aid and Blue Cross.
Q. And Public Aid and Blue Cross?
A. Right.
Q. Now, the diminished health model is based on the NMES data, right?
A. Yes.
Q. It's also based on claims data from Medicaid and Blue Cross, right?
A. In part the relationship between smoking and costs via reported health is all based on NMES.
Q. But it's also based in part on the claims data?
A. In part, yeah.
Q. And it's also based on the BRFSS data?
A. Again, in part.
Q. Page 6 of your report you state that the diminished health status model $675 million arises from smoking attributable Public Aid expenditures of males, 19 to 34?
A. Yeah.
Q. Do you see that?
A. Yeah.
Q. Now, is it your testimony that the plaintiffs are claiming that entire $675 million as damages in

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this case?
A. Well, the $952 is adding up the estimates for six age groups, and for the males, 19 to 34, what enters into that sum is that $675 million.
Q. And then that sum is offset by negatives in some of the other age groups, right?
A. Well, there are estimates for the other age groups that are added in there, yes. I don't remember what the particular ones are, but perhaps there is some negative numbers. But I can't remember which one is which, but I remember seeing at least one.
Q. At least one negative number?
A. Yeah.
Q. And that negative number works as an offset to the $675 million for the males, 19 to 34?
A. I guess I'm unclear what you mean by offset.
Q. Well, you add all of those numbers up, right, to come up with the $952 million, correct?
A. Right.
Q. And if one of the groups has a negative, number that's subtracted from the positive numbers, correct?
A. Correct.
Q. Would you agree that that can be called an offset?

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A. Well, I would just say that when you're estimating the 9 -- when you're coming to the total using the $952, you're adding up some numbers and you have a positive number. We can talk about the 952, but then I would want to say: Let's go to the reliability of that number, or we could talk about a sub-group, and then I would want to talk about the reliability of that number.

Q. Well, what I'm talking about now and what I'm asking you now is that when you add up the numbers to get to 952 you take into account both --

A. Well, they added it up.

Q. Right. When you add up the six sub-groups for the diminished health status model, you add up both the positive numbers and the negatives in order to come up with $952 million, correct?

A. You add up all the numbers, right.

Q. And some of those numbers are negative, correct?

A. I believe so.

Q. So the plaintiffs are not claiming the entire 675 million which arises from Public Aid expenditures for males, 19 to 34, as damages because some of that amount is offset by other groups, right?

A. I don't think so. Had that number been smaller, they would have claimed less. Had the 675 instead

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turned out to be 300 million and you added all the other numbers up, you would have gotten another number that was 300 million less.
Q. So it's your testimony that there are no offsets to that 675 million?
A. Well, you can talk about the 675 million. 675 million goes into the 952, right?
Q. The entire amount?
A. That's the entire amount. You add in 675 so it's got to be the entire amount.
Q. Don't you, however, subtract negatives in order to get to that $952 million?
A. I don't know if you subtract negatives, but --
Q. Add negatives?
A. You add up all the individual estimates, whatever they are, but the 675 is one of those that you add in so it goes into the 952.
Q. And as you've testified, there are negative offsets as well?
A. Some estimates are negative. That's --
Q. Now, page 6 you also say that 395 million is for smoking attributable Public Aid expenditures for hospitals for males, 19 to 34, correct?
A. Correct.
Q. And again, that number is only one of several

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numbers that are added up to reach the $952 million total in the diminished health status model, right?
A. Correct.
Q. And that number is also subject to offsets that are negative, right?
MR. GARNICK: I'm going to object to form.
THE WITNESS: Again, you are just adding up a bigger group of numbers that are -- that are point estimates for those particular sub-groups.
BY MR. HAMLIN:
Q. And some of those numbers are negative?
A. I believe so.
Q. Now, have you specifically examined the contribution to smoking attributable expenditures of males, 19 to 34, who are insured by Blue Cross Blue Shield?
A. Not in detail. I may have looked at it once, but I don't recall exactly what it was. I focused mainly on Medicaid or Public Aid.
Q. So you don't know what the overall number is?
A. In terms of costs or looking at the exact data points? I guess I'm confused with the question.
Q. What I'm specifically asking you is the contribution to smoking attributable expenditures of

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males, 19 to 34, who were on Blue Cross Blue Shield?
A. I believe you could probably work that out with the numbers I have given you here. Maybe not. Did I do the total Public Aid that the 515 number -- that's hospital expenses. Well, if I had the total and I had the Medicaid total for -- 675 is for Public Aid -- you could probably calculate it off one of these tables like Table 5. Maybe not. I don't know if I have ever actually done it, but some of these numbers in combination I think you could do it very easily.
Q. But you can't recall actually doing that calculation?
A. I think I've done it, but I can't actually recall the number.
Q. Do you recall whether there was much fluctuation in the groups for diminished health status for Blue Cross?
A. I don't recall for the 19- to 34-year-olds?
Q. For the 19- to 34-year-olds.
A. For the Blue Cross?
Q. Correct?
A. I don't recall.
Q. Do you know if there was much fluctuation in all of the groups for Blue Cross that make up the diminished health status?

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A. I think I have -- you mean, the relative error?
Q. The fluctuations in the individual groups.
A. I don't recall. I mean, I don't know if I did that, but I'm not sure.
Q. Do you recall if there were large positives in that -- in any of those groups that make up the health model for Blue Cross?
A. I don't recall.
Q. Do you recall if there were any large negatives?
A. No.
Q. And so as you sit here today, you don't know if there was much fluctuation at all in these groups? You just don't know?
A. Cross ages for Blue Cross Blue Shield?
Q. Correct.
A. As I sit here, I may have, but I don't remember.
Q. Let me direct your attention to Table 5. Specifically I want to direct your attention to column 1 which describes various models, and to the third section which describes the Blue Cross Blue Shield model. Do you see that?
A. Yes.
Q. Specifically, I want to direct your attention to item 19, diminished health pure plus mixed. Do you see that?

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A. Yes.
Q. The damage estimate is 240,309,097, right?
A. Right.
Q. Now, the confidence interval at 95 percent has a positive lower limit, right?
A. Correct.
Q. And that's 59,917,000 plus, correct?
A. Correct.
Q. And the upper limit is 420,000 -- strike that. 420,700,748, correct?
A. Correct.
Q. And plaintiffs' damage estimate is within those intervals, right?
A. Correct.
Q. And again, let's look at Blue Cross Blue Shield diminished health pure plus mixed and direct your attention now to the 90 percent confidence interval. The lower limit is positive, right?
A. Yes.
Q. And the upper limit is also positive?
A. Yes.
Q. It's 391,608,709, right?
A. Correct.
Q. And the Blue Cross damage estimate falls within those?

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A. Correct.
Q. Let me direct your attention now to Table 8. Now, this table is titled Men 19 to 34 Smoking Attributable Expense Estimates All Conditions Versus Epilepsy, Injuries, Impairment and Mental Problems: ZWM #1. Do you see that?
A. Yes.
Q. Now, you've got a number of columns. The first is expense category, right?
A. Yes.
Q. And then all conditions, correct?
A. Right.
Q. And then you've got a number of specific conditions including epilepsy, injuries, impairment (e.g. paralysis) and mental problems, correct?
A. Right.
Q. What is the source of this data? Is it NMES?
A. This -- all I did here was essentially reestimate or re-run the Zeger model from start to finish, including the BRFSS and including the Medicaid dollars using in NMES only those that -- using only those conditions that I've listed and compared them to, if you would have had all conditions included.
Q. When you included these other conditions such as epilepsy, did you go to the NMES data base to get

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that information?
A. The NMES, right, there are ICD9 codes listed for expenses so that's where those are from.
Q. You didn't go to the Medicaid claims data, did you?
A. No. This essentially was using the -- again, focusing on these conditions, these -- these substantive conditions, reestimating the base model which estimates the relationship between smoking and expenses, and that is based on NMES, and then from there doing the imputations from those estimates using BRFSS, and then applying them to the dollars in the state Medicaid data, GAMC and Medicaid.
Q. But you didn't go to the Medicaid claims data and pull out ICD9 codes and expenses for epilepsy, right?
A. Here, no. It was just mainly a check to see -- the basic model that looks at the relationship between smoking and expenses is estimated in the -- with the NMES data. So the question arises whether they can distinguish between conditions which, for example, Samet said are not related to smoking and other conditions, and it was in the sense a validity check to see whether or not you would get differences if you reestimated this model -- reestimated the

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relationship between smoking and expenditures. But now use expenditures which at least Samet says are not related to smoking, and then use those to get your damage estimates, whether you would get something similar or different.
Q. Let's do it this way: How did you define epilepsy?
A. I think in Appendix A I listed the ICD9 codes. So epilepsy would be 345.
Q. How did you define injuries?
A. Injuries were any ICD9 code between 800 and 939, and 915 to 994.
Q. How did you define impairment?
A. Impairment would be these X codes that are contained in NMES, and those would be X00 through X99.
Q. And how did you define mental problems?
A. There were the codes 290 through 319 and also a code which had a description of mental behavioral problems which is a V code, V40.
Q. Those codes appear on Appendix A?
A. Yeah.
Q. Now, how did you choose these particular conditions?
A. Well, these would just be conditions which at

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least at the time of the report I thought had nothing to do with smoking. And, in fact, Samet in his testimony said that -- at least for the majority of these, that they were not smoking-related, and I wanted to see whether -- why you have set up diseases which you think are not smoking-related and you want to see whether or not you get a large estimate or not, i.e., can the model distinguish between diseases that are smoking-related or not. So intuitively I thought, well, these seem like diseases that are not related.

Samet referred most of them, at least that's my recollection, as not being smoking-related. And therefore, you would expect that if they weren't smoking-related, you should get a number around zero. If you ran their model and to distinguish between these --

Q. Did you get the ICD9 codes from Samet?

A. I don't think I got the exact ICD9 codes from Samet, but just -- I had these ICD9 codes which had the descriptions there, and I did this before Samet's testimony. But then when he asked whether or not epilepsy was related, he said no, for example, but he didn't say for a particular ICD9 code.

Q. Who selected the ICD9 codes on Appendix A?

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A. I did.
Q. You didn't do that in consultation with any epidemiologist or medical doctor, right?
A. No.
Q. No, you did not?
A. No, I did not.
Q. Now, what did you do to collect the costs for each of these conditions? Did you look to NMES?
A. Right. Again, to reiterate, the relationship between smoking and costs, the basic relationship, right, which again is -- at least there is some debate like Schweitzer mentions as to whether or not there is a clear-cut relationship to those, that that basic relationship is based on a national NMES data.

And I wanted to see whether or not using the NMES data -- when you restrict to certain types of expenditures whether that basic relationship changes or not when you have expenditures only for diseases or conditions that are, at least in my mind -- and Samet -- maybe not in the ICD9 codes but he confirmed most of the diseases not related to smoking whether the model could distinguish those in terms of calculating the smoking attributable fraction.

That then, in turn -- once you've reestimated that part of the model, you did the same types of

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imputations with the BRFSS; essentially just running it through the rest of the Zeger model to the Medicaid expenditures to come up with a dollar estimate from those SAF or smoking attributable fraction estimates.
Q. Now, are there conditions here that Samet did not identify as being unrelated to smoking?
A. I don't think so, but I'm not 100 percent sure.
Q. Have you ever checked?
A. I've looked through his testimony, and I thought he said them all, but like you say, he didn't say every single ICD9 code, but in general he seemed to agree with all of them.
Q. Now, you say you ran Zeger's model with these new conditions in them, right?
A. Well, these were always in Zeger's model. What I did was -- I mean, Zeger's diminished health had all these conditions in them. So I'm not adding anything in them, but I'm not isolating or looking at these particular conditions or the expenditures associated with them when I reestimated the relationship between smoking and costs.
Q. Did you look at the refined model in reaching your conclusions on Table 8?
A. Let's be careful about what you mean as a

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refined model. Do you include diminished health model as a refined or are you talking about lung cancer?
Q. I'm talking about the major attributable diseases; lung cancer, COPD and other diseases.
A. Right.
Q. Go ahead.
A. Yeah. Here what I've done is simply focused on the diminished health model, which is a different type of model.
Q. Did you remove anything from the diminished health model in order to focus on these particular conditions?
A. Okay. If you look -- I guess I have it in a footnote somewhere. The footnote 3 I believe on page 8. What I did was -- essentially Zeger has presented three different estimates with diminished health one in his original report, and although he talks about one in his supplemental report, he actually gave computer files that contained another estimate.

Now, when you focus on a limited number of expenditure types or conditions, it turns out that in one of the ten equations that he needs to estimate his model there is one variable since the -- it's not that the sample sizes are small, but that you have a

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lot of zero's which gives you some problem. And it's only in the heteroskedasticity part of the -- what is it -- the model.

And it says public private interaction turn. And I was worried that I had to drop that term to get the model to work; is that going to cause this result.

So what I did was I reran the Zeger model excluding that one variable in the one equation on the original conditions without focusing on epilepsy.

Q. What was the variable that you've run?

A. It's this one, but it's only in the heteroskedasticity part of the equation for log hospital expenditures. Remember, they do correction for heteroskedasticity. So it's not even in the regression part, but rather the heteroskedasticity part.

I was worried that maybe this was influencing my results; however, when I omit this variable and re-run the original data using all conditions virtually, I get the same answer as ZWM where it changes by less than a tenth of a percent. So it wasn't that that's deriving my results.

Q. Why is it that you've picked that variable to drop initially? I'm not sure I understand that.

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A. Well, because given the fact -- remember what the Zeger model does is that it estimates the probability of having a positive expenditure. But then only for those who have expenditures, right, it estimates this log expenditure equation.

In this particular case it would be log hospital expenditures. When you focus on the very limited number of conditions, right, then the number of people who actually have positive expenditures is actually going to be less.

So given the complexity of their equation, all of these heteroskedasticity controls and also the problems you have with convergence of this model. In fact, to do this there is some warning demonstrate about convergence for this particular model. You can't get convergence using all these variables; however, if you drop out this one variable, it converges nicely.

Again, this is only one equation out of ten. Essentially all the rest work fine. So in this one particular model you have to run a slightly modified model, and I was worried that maybe my results were just solely due to this variable change. And so I reran this modified model on the original data including all conditions and virtually get the same

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results. So that's not deriving the results.
Q. Now, you say at the top of footnote 3, ZWM diminished health models for males 19 to 34 involve estimating ten equations. The first one you list is a previous disease equation; is that right?
A. Right.
Q. Is there -- I don't think there is a previous disease equation.
A. I made a mistake on that one. The older groups might have disease. So I guess it would be nine. Sorry.
Q. And it appears to me -- well, let me direct your attention to this sentence that says: Finally when the diminished health model contained in ZWM's original report and subsequently modified is reestimated using medical expenditures only for the limited sets of conditions contained in Appendix A, the implied smoking attributed fraction for hospital expenditures of males 19 to 34 receiving Medicaid is .401. ZWM's implied say for hospital expenditures of males 19 to 34 receiving Medicaid is .316 when all medical expenditures are analyzed.
Let me ask you this: Is what you did with these limited conditions was run the diminished health status model just with epilepsy, injuries, impairment

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and mental problems left in it in order to come up with the estimates that appear in Table 8?

A. Well, it's probably better to just focus on, for example, the rated health equation and then the probability of positive expenditures, right? Those include all individuals.

Now, whether you have a positive expenditure or not is relative to those limited set of conditions in what I've done. Then you go to conditional on the positive expenditure, run a regression of log expenditures on a bunch of stuff. Well, that will be only containing individuals who have positive expenditures.

So if I have expenditures for some other type of illness that's not in here -- hospital expenditure -- suppose I didn't have any of these expenditures in the original model? I would have appeared -- they all appear in the rated health equation. They would have appeared in the probability of having a positive hospital expenditure.

Now -- and then I would have appeared in a log hospital expenditure equation. In this model you appear still in the rated health equation. You appear still in the probability of having a positive expenditure, but now your information is -- well, you

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didn't have a positive epilepsy or whatever expenditure so you get a zero there in your data instead of a one, and then you've been dropped out of the log expenditure equation because you don't have a positive hospital expenditure on epilepsy, but maybe some other condition that would have been in the original one.

Q. Did you apply any of the plaintiffs' screens in working up this new model with these conditions in them?

A. I guess I'm unclear what you mean by screens.

Q. The age and disease screens that the plaintiffs' experts testified to.

A. Well, these -- that's irrelevant for this model I think. This is -- especially for 19- to 34-year-olds there is no screens. It's everything.

Q. So what you did was you restricted yourself to the diminished health status model alone?

A. Right.

Q. So, therefore, you applied no screens?

A. Right.

Q. Now, can you point to any scientific literature to show that smoking causes epilepsy?

A. No.

Q. Did you do a search of the literature on smoking

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and epilepsy before putting together this Table 8?
A. I don't believe so.
Q. Can you point to any literature that suggests that smoking causes accidents?
A. No.
Q. Did you do any literature search of that subject matter?
A. Well, all I recall has to do with things having to do with burns and -- but I excluded those. But other than that, I mean, I think Manning mentions that in parts of his book. Not that it caused it, but there was potentially a relationship. But I don't have burns in mine.
Q. I take it that it's your testimony that smoking doesn't cause impairment as you've defined that term in Table 8?
A. Right. The impairment that I -- that are listed there are things such as expenditures for paralysis.
Q. And you didn't do a literature search to determine whether smoking does or does not cause impairment, right?
A. Correct.
Q. Did you do any literature search to determine whether smoking causes mental problems as you've defined it?

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A. Well, other than -- I mean, again, I believe that Samet mentioned some of these, but I didn't do a specific literature search.
Q. You don't believe that smoking causes the mental problems that are listed here, right?
A. Personally I don't.
Q. So you would agree that there is no medical foundation for calculating smoking attributable expenditures for epilepsy, injuries, impairments and mental problems, right?
A. Right, and that's why I used it as a check; that if there is no foundation, intuitively I don't think it's true -- although, again, I'm not an epidemiologist, you would hope that their model could distinguish between those expenditures and those that potentially are related to smoking.
Q. Did you calculate smoking attributable expenditures for any other conditions which you claim are unrelated to smoking other than the ones you listed here?
A. I may have done so in the first report with regard to the first -- first model that plaintiffs put in their original report.
Q. Did you attempt to investigate as to whether there were any negative SAFs for any conditions

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unrelated to smoking which would work as an offset to the positive SAFs that you apparently found in Table 8?
MR. GARNICK: Object to form.
BY MR. HAMLIN:
Q. Let me ask it this way: Did you do any investigation or make any calculation to determine whether there are any negative SAFs for conditions that are unrelated to smoking?
A. I may have calculated for other age groups, but I can't remember it off the top of my head what the SAFs are.
Q. I'm asking you whether you looked at other conditions that may have yielded a negative SAF.
A. No. I just was -- again, this was for checking the validity. I was wondering -- I looked at these particular illnesses and was calculating whether or not -- or seeing whether or not their model could distinguish these, but I did not try a whole different number of different types of diseases and redo the same thing.
Q. So you don't know whether or not there are other conditions that are unrelated to smoking that would yield negative SAFs?
A. Not off the top of my head.

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Q. Would that make a difference to you if there were such SAFs?
A. Well, again, if you have what you call your offsets, then first of all, the law of averages -- I mean, this point raises a red flag that there may be some validity issues here. There is other validity issues that you might want to worry about. But, again, if you're talking about what you would term as offsets, and you're looking at the total, well, let's just go and check the reliabilities of the total estimate.

And, again, you're back to the large relative errors, and the fact that even in total you have an unsatisfactory reliable estimate.
Q. What do you mean by the law of averages?
A. Well, I always think of the law of large numbers.
Q. Can you explain to me what that means?
A. As your sample size gets bigger and bigger and bigger, you're going to get -- the probability that you're going to be -- away from the truth is going to get smaller and smaller and smaller, and a way to check that is to look at the confidence intervals or relative errors.

Also, if you line the outlaw of averages in

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removing an observation should not have much of an effect on your estimate either. For example, nursing homes, you do see that removing a single person might change the estimate by as much as a third.

Q. Well, that's not what Wyant found, right?

A. Wyant found that throwing out younger than 60 and over than 90 gave him the same estimate, but if you look at the relative error, the relative error is still 140 percent. So it's still an unsatisfactory reliable estimate.

Q. So Table 8 then is in your opinion a sensitivity test on the plaintiffs' model; is that right?

A. 8 is more, I guess, a validity test in a sense that can the model distinguish conditions that are related to smoking or not, and especially when you get into the issue of diminished health and you're adding everything together and you have all these all around.

There is no clear-cut connection, not only between smoking and illness here as Samet has stated, but certainly not between smoking and costs.

There have been issues raised by a number of people, and so one thing I wanted to check was whether or not the model can at least point in the right direction. As related illnesses unrelated to

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smoking does it come up with numbers that are smaller or closer to zero than are based on non, and the answer is no.
Q. In the diminished health status model that you started with in doing this validity check, as you call it, those conditions were in that model, correct?
A. Yeah. That started with all conditions, and then I'm saying that, okay, here you have all conditions. Let's look at a narrow set. If the narrow set truly has a zero, do you get an answer that's close to zero?
Q. So what you did then with the diminished health status model is you no longer looked at all conditions, you attempted to narrow it to certain selected conditions that appear on Table 8, right?
A. Right. Expenditures for those conditions.
Q. So you basically took a model which was designed to look at all conditions, and you changed it to attempt to look at -- looks like you've got four conditions, right?
A. Well, again, the model is looking at those conditions to begin with.
Q. But you narrowed the diminished health status model to look just at those four conditions, right?

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A. Correct.
Q. Now, can you refer me to any article of the scientific literature on health care costs that you used as a basis for conducting this kind of a test?
A. I believe there may be some mention of it in Manning as I remember that -- not those specific illnesses particularly.
Q. Is it your testimony that Manning took a diminished health status model and narrowed the conditions?
A. Well, not this particular model, but, again, I recall seeing it somewhere. I'm trying to place where I saw it. I thought it might be Manning. Again, it wasn't this specific model.
Q. Well, is it your recollection that Manning took a narrow set or a limited set of diseases as some kind of a sensitivity test?
A. I don't recall exactly. I know he did a narrow set of major smoking-related diseases as a sensitivity test, but I can't recall if he did this.
Q. What did he find with the major smoking-related diseases?
A. Well, my recollection is that -- he's focusing on a lot of different stuff, so my recollection is that if you just look at medical expenditures, and

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you look at nursing home, that he actually gets for men a negative number in the original model.
I think for women -- I can't remember exactly what it is. It may be possibly -- I don't remember the number. When he focuses on just those diseases, what does he get? I can't remember. It may be a larger number or smaller. I can't remember off the top of my head, but he does do other sensitivity tests like just looking at the -- not controlling for any type of tests, so --
Q. Did he do any kind of a test where he looked at conditions that were unrelated to smoking and attempted to calculate expenditures for those conditions?
A. No. What he did instead I think was say, well, since they're unrelated, I'll just throw them out.
Q. But he did not try to calculate expenditures for conditions unrelated to smoking, did he?
A. No, because he threw them out to begin with.
Q. So the answer to my question is he didn't do it, correct?
A. I don't think so. I'm not 100 percent sure, but I'm pretty sure he didn't.
Q. Do you know whether there is --
A. I have a sense he does because he puts a zero to

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them, so --
Q. But he didn't do what you did?
A. No, not exactly. He didn't have the same --
Q. But he didn't attempt to calculate expenditures for conditions unrelated to smoking?
A. I don't think so.
Q. Do you know of any article in the published scientific literature that uses as a sensitivity test or validity check a model that attempts to calculate expenditures for conditions unrelated to smoking?
A. Well, again, since most of the papers that I have looked at don't consider all conditions to begin with, and again, the ones that do, many of them use completely different methodologies. I haven't off the top of my head seen one that actually has done it that way.
Q. So this is something that you created for the first time for this case, correct?
A. To my knowledge. I don't --
Q. Did you do this at the advice of counsel?
A. I don't think I did. I remember doing this, playing around with these things and wondering if different types of injuries had -- or conditions had different effects.
And so I was doing that and found -- because I

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remember reporting for men 19 to 34, you got the surprising result, and they seemed pretty surprised at it, so I think I came up with it myself.
Q. Well, since then have you done an investigation of the literature to see if there was any scientific article on smoking and health care costs that has used a validity check where they calculate the expenditures for conditions that are unrelated to smoking?
A. Again, the problem you have -- to my recollection there is two types of studies; one which only looks at major smoking diseases and the other which just lumps all the costs together and has no information about which costs are which, and, therefore, couldn't do it.
Q. So the literature just doesn't do it in your opinion?
A. At least for those types of studies that I've looked at I have yet to see it, but a lot of that is due to data limitations.
Q. In your prior work as an expert witness you worked in employment cases, correct?
A. Yes.
Q. Were these mainly employment discrimination kinds of cases?

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A. Mostly.
Q. And have you in those cases ever prepared a model on the effect of -- on wages of employment discrimination?
A. On wages?
Q. Yes.
A. No.
Q. Have you prepared a model on the economic impact of employment discrimination on a business?
A. On a business? No.
Q. In a particular company?
A. The effect on the company?
Q. Yes.
A. No.
Q. What kind of models have you prepared with respect to economic costs in employment discrimination cases?
A. Most of the models have to do with -- well, they're usually two parts; the first one has to do with whether or not there was any discrimination that we use a statistical model for, and the second part is typically given discrimination; what was the cost impact typically upon that individual. And some cases, though I didn't actually do these calculations but I worked on the cases, was class action.

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Q. So this model -- well, how many times have you prepared models that estimated cost impact on individuals?
A. I think a couple times for plaintiffs and a couple times for -- two or three times for defendants so maybe five or six times, somewhere in that ballpark.
Q. Now, did you ever do a sensitivity test on the model or models that you used in these employment discrimination cases?
A. Yes.
Q. And did you ever attempt to determine the cost impact on automobile accidents as a sensitivity test?
A. I never had that data.
Q. Is that something that you would use as a sensitivity test?
A. Well, I don't think I would to start with include automobile accidents in the total costs.
Q. Well, what kind of sensitivity tests did you perform?
A. I would narrow it to particular sub-sets and look at how the results changed, controlling for various characteristics, you know, adding more controls, breaking -- estimating it only on women or only on a particular occupational category, and so on

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and so forth, to see whether or not results hinge on how you're doing and how you're defining - quote - unquote - the population.
Q. Well, have you ever done a sensitivity test where the -- where you looked at cost impact on factors that were completely unrelated to employment discrimination?
A. Well, again, I would not include those in the total costs to begin with.
Q. So you haven't done that?
A. I don't know what you mean by completely unrelated, but, no, I've described the sensitivity tests that I typically would do given the time constraints that I'm faced with, and the fact that I'm usually involved with a case involving just one plaintiff.
Q. Would automobile accidents be related to employment discrimination?
A. That's why I don't include it in the costs.
Q. It wouldn't make any sense, right?
A. To include it in the costs?
Q. Yes.
A. For damages?
Q. That wouldn't help you determine whether or not your model was valid or not, correct?

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A. Well, had I put it in there, I would wonder what it was doing in there.
Q. But you never did?
A. Because if I did, I would have questioned the validity, but I don't typically put -- or never recall putting auto accidents in.
Q. I mean, is it your view that auto accidents increase or decrease as a result of employment discrimination?
A. There is a chance you get spurious correlation, but whether it's a causation story, I never did a study on that.
Q. Do you know of any literature that suggests that?
A. Not off the top of my head.
Q. So as a result, you wouldn't be performing sensitivity tests on conditions that are totally unrelated to employment discrimination, right?
A. Because I would have excluded those to begin with.
Q. And is it your opinion that the diminished health status model in its operation does not exclude costs that are unrelated to smoking and smoking-related diseases?
A. It doesn't because it includes all conditions

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except for 34 to -- 34 and older. It takes out the major smoking attributable disease, so --
Q. But once the smoking attributable expenditure is calculated, that expenditure is for the cost of smoking-related diseases, right?
A. Not in diminished health. For example, in the mixed model, there is no interpretation of smoking-related disease. That number coming from the mix is just a coefficient. There is no causation on anything. It's based on all the conditions.
Q. Does the smoking attributable expenditure that is calculated for the diminished health status model state expenditures that are the result of treating smoking-related conditions in the plaintiffs' model?
A. Plaintiffs' experts, that's what they're trying to do. Again, if you look at what their estimate is, you can't reject zero, so --
Q. Well, is it your testimony that the dollars that are being claimed for diminished health include dollars that are being paid for something other than smoking-related conditions?
A. The dollars as -- they -- the smoking attributable fractions are applied to a pot which includes all illnesses.
Q. And then a smoking attributable expenditure is

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calculated, right?
A. Based on all expenditures. Mathematically that's what they're doing.
Q. It's a portion of that pot, right?
A. Statistically an insignificant portion.
Q. Well, it is a portion of that pot, correct?
A. Statistically insignificant portion, correct.
Q. Is there some reason why you simply can't answer my question about whether that's just a portion of the pot?
A. Well, what they do is they get a number, a fraction -- I mean, they divide it up into certain groups, but they principally divide it up containing expenses for everything, including epilepsy.
Q. Let me show you what has been marked as Trial Exhibit 26047. That's the Milliman & Robertson Chrysler report. Have you reviewed that report?
A. Yes.
Q. Do you have any disagreement with its conclusions?
A. With respect to what?
Q. Smoking attributable expenditures for one --
A. Group?
Q. Do you have any criticisms of the report?
A. I believe it doesn't control for any confounders

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as I recall.
Q. Are there any other criticisms?
A. It's not applicable with anything that has to do with Medicaid.
Q. This is private insurance, right?
A. Correct.
Q. How did you make the determination that there was no control for confounders?
A. Because they're not doing any sort of regression, as I remember. They're just -- they just break out smokers and non-smokers and add up the costs.
Q. In fact, though, they study ten different health behaviors, right?
A. I know they did a number; exercise, drinking and I don't remember exactly which other ones they did. I'll take your word that it was ten.
Q. Let me direct your attention to page 6 marked Overview.
A. Okay.
Q. The first column there, the question that they asked is how did an individual's health habits affect medical claims.
A. Correct.
Q. This question has been getting increased

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attention from employers, insurers, medical providers and policy makers as they search for ways to reduce medical costs. The answer seems intuitive -- unhealthy habits produce higher medical costs. But which habits have the most impact on costs, and how much risky health habits directly relate to increased medical costs. Do you see that, the first full paragraph?
A. Yes.
Q. It says this study was conducted to answer these questions. It was designed to measure the relationship between health risk and behavior and the cost of medical care. And then they talk about the ten different health behaviors which were studied, right?
A. Correct.
Q. They go on to say the medical utilization and cost data were analyzed for low and elevated levels of risk for each category.
A. Each separately.
Q. Right. And, in fact, the authors did conclude that there was costs attributable to smoking, right?
A. That's what they concluded.
Q. Do you have any disagreement with that conclusion based on your review of this study?

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A. That they don't have any controls for confounders, i.e, when they look at smoking, they're not controlling for alcohol or any other factors. They look at each in isolation. I know there were others, but that's one big one.
Q. Do you consider this study to be authoritative and reliable?
A. In my opinion I don't know what sort of questions they were trying to answer. I don't think it was published. It was just a report by some consulting firm --
Q. So my question is, do you consider it to be authoritative and reliable?
A. It's not authoritative and reliable for the question that I was asked and answered in this litigation.
Q. What question is that?
A. Or to comment upon. Calculations of smoking attributable expenses and for Medicaid and Blue Cross Blue Shield of Minnesota.
Q. In your work as an expert in other cases have you looked at other studies as a check on the work that you were doing?
A. Selectively. I mean, I would look at other studies, and if I thought the studies were flawed, I

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wouldn't necessarily look to them as a check.
Q. But you would compare your study to others, right?
A. I wouldn't compare the numbers by the time I got to their tables if thought their study was flawed.
Q. Let me ask you this: Have you ever found a study that you used as a check that wasn't flawed?
A. Yeah.
Q. So you have found those kind of studies, right?
A. Yeah, I found some studies that I would consider -- wouldn't -- or weren't fatally flawed.
Q. And you've used them as a check?
A. Just on certain parts of my study. Usually my study might be looking at something different. They might look at certain rates to make sure the data -- they might have used the same base data, and I'm worried that maybe I didn't do something right; I had a typo in my code or my fractions were off or something like that. But nobody's ever really used similar sorts of statistical models or very few. So in my opinion, their estimates are not really comparable so I can only check that part.
Q. But in your previous work you have looked to other studies as a validity check, right?
MR. GARNICK: Asked and answered.

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THE WITNESS: Part of my results that I reported.
BY MR. HAMLIN:
Q. This is not an unusual practice, right?
A. As long as the person concludes that it's relevant to what they're doing in the sense that it's applicable to the exact problem they're studying and they're using even similar techniques.
I mean, people actually publish replications. They probably would check to see whether or not they're --
Q. And have you on occasion looked at studies that were not peer reviewed as a check for parts of the work that you were doing?
A. I can't recall any. There may have been some, but I can't off the top of my head say yes or no.
Q. Well, let me direct your attention to page 11 of the Milliman & Robertson report. Do you have that?
A. Yes.
Q. That page deals with smoking, right?
A. Yes.
Q. Let me direct your attention to the paragraph that says: It is not surprising that smokers' claim costs prove to be significantly higher than non-smokers. The effects of smoking on mortality and

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morbidity are becoming clear overtime.
A. Yes, I see that.
Q. Do you have any reason to disagree with that statement?
A. I wouldn't derive it from their conclusions. I mean, I would not -- they haven't controlled for confounding. I don't know that I would end up with that conclusion based on their analysis.
Q. Well, do you agree that the effects of smoking on mortality and morbidity are becoming clearer over time?
A. I guess what do you mean by clearer? Again, this is -- there is some issue of whether or not there is this -- smoking disease relationship and then there is disease costs, but it's still unclear about the smoking cost relationship, especially when you haven't controlled for any confounders at all. I -- you know, behavioral differences could corrupt your data or analysis. Excuse me.
Q. Have you compared the results of the Milliman & Robertson study to other studies that do control for confounders?
A. Well, there is an earlier study by this same consulting group that does a very small limited number of confounders, but it looks like confounding

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is there. I don't think it was with Chrysler. I think it was with a different company. I think it was an '87 report or something like that. There was an earlier one by one of the guys that wrote this and there is evidence. It looks like there is confounding going on even looking at controlling variables for controlling lots of stuff, so --
Q. Have you compared this report to a study that controlled for confounders to compare the results?
A. I don't think directly.
Q. So you don't really have any idea what effect confounding has on this study, right?
A. No, but I would be worried that it would have a big effect, so I would probably control for it to see.
Q. But as you sit here today you really don't know what, if any, effect it would have, right?
A. That's what would worry me; I don't know so I would want to see.
Q. But you haven't gone back to the literature and looked for studies that control for different confounders and compared those studies to the Milliman & Robertson study, right?
A. I have looked at other studies that control for other confounders. I haven't directly compared their

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results. I've looked at various studies, some of which look for different confounders, but I haven't went back and looked and said, "This is what they've got. This is what I've got." There are so many studies, a cross, that such a comparison wouldn't be very useful.
Q. Well, Milliman & Robertson says the annual claim costs for smokers were 31 percent higher than non-smoker claim costs. Do you see that?
A. Yeah. What page is that on?
Q. Page 11.
A. I see that.
Q. Now, have you looked at any studies that controlled for confounders?
A. Yeah, I've looked at studies that have included confounders.
Q. What did those studies calculated as costs related to smoking?
A. I can't remember every study.
Q. I'm not asking you for every study. I'm asking you for the ones that come to mind.
A. Some are negative. Again, I'd have to look over and kind of bounce all over the place to my recollection.
Q. What studies are negative?

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A. Newman Schwab.
Q. They found no costs?
A. I believe so; at least one of their studies. I think they've done more than one. One of their studies found negative effects, I believe, and again, they -- there is no uniform conclusion, I don't think, on the effects. And, again, that's why it's still an open debated question. Schweitzer finds some evidence that there may be no significant relationship, and Manning, for certain groups, may have found some negative results. I didn't break it down.

His is hard because he's got so much other stuff in there so it's hard to tell, but I know he has some controls for confounders. So, again, it's all over the map, so it's hard to keep a uniform, single answer.
Q. So it's your testimony that there are health care studies out there that showed no costs for smoking-related diseases?
A. Well, I mean -- smoking-related diseases? How are you defining those? I mean, different studies do different things so it's really hard to say. Some just limit it to lung cancer. Some studies do different types of approaches, different approaches,

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and so on and so forth.
So it's, again, hard to -- not only hard to give you a single answer, but certainly even more difficult to do comparisons.
Q. Let's talk about the study for lung cancer. Did that study find that there were no costs for lung cancer caused by smoking?
A. Some of the studies that I remember may have found positive cause. I don't remember the exact fraction or anything. I don't even recall if they did significant tests so I don't know if they're statistically significant.
Q. What studies fall into that category that deal with lung cancer and that have found positive costs?
A. I believe certain studies by Rice have. Again, I don't know -- she's done several studies and various co-authors, so -- there are others. I don't know if they're published or not.
This unpublished study -- so there is a number that you have, but I don't recall significance levels. I can't remember if their results were significant or not, statistically, so I would have to go back and look at them.
Q. Can you cite one health care cost study that shows that there is no cost for treating lung cancer

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caused by smoking?
A. Not off the top of my head.
Q. Can you identify one article or study that concludes that there is no cost for treating COPD, chronic obstructive pulmonary disease, which is caused by smoking?
A. I can't think of any right now.
Q. Can you identify one study that concludes that there is no cause for treating coronary heart disease caused by smoking?
A. I'm trying to remember. That one is harder for me to tell. I mean, again, I would have to -- I've looked at several studies and the numbers get jumbled. Right at this time, I can't, but I'm not sure.

MR. HAMLIN: Let's mark this.

(Plaintiffs' Deposition Exhibit No. 4877 marked for identification.)

BY MR. HAMLIN:
Q. Let me show you what's been marked as Deposition Exhibit 4877. It's an article entitled State Estimates of medicaid Expenditures Attributable to Cigarette Smoking, Fiscal Year 1993.
A. Yes.
Q. Have you reviewed this article?

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A. I may have -- not the exact article, but I may have looked at preliminary reports that are done by this same author. I haven't looked at this exact article in detail, but -- though I think some stuff that I've looked at forms some draft of this paper at some point.
Q. Well, do you understand -- let me ask you this: Have you read this article?
A. Not that exact article. I've read work by Miller and Rice and Max and Novotny, and I believe it was earlier drafts of something that ultimately got condensed.
Q. Are you familiar with the Journal of Public Health reports?
A. Public health reports?
Q. Yes. The journal that published this article.
A. No, not particularly.
Q. Do you know if it's authoritative and reliable?
A. I'm not sure if it's -- I don't know.
Q. So you don't have any comments on this article?
A. Not this exact article, though I don't know if there were any modifications made between one draft and the other.
Q. Well, do you understand whether the authors were using a form of the diminished health status model to

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estimate state Medicaid expenditures attributable to smoking for fiscal year 1993?
A. Well, I believe they were estimating a different type of form. Not the exact same form as what Segert did, but some form of diminished health type model.
Q. Now, assume that public health report is a peer review journal.
A. Okay.
Q. And this article was published in March, April, 1998 edition.
A. Okay.
Q. Would that affect your opinion regarding the validity of the health status model in this case?
A. No.
Q. It wouldn't matter that others in the public health field reviewed the diminished health status model or a form of it and agreed to publish it, correct?
A. No, it wouldn't. I mean, -- well, again, I would have to look at this revision in particular to see whether or not it's similar to what they did before and whether my same criticisms held or not. So I haven't looked at this in detail.
Q. If you look at the first page under results, you'll see in the second or -- first paragraph under

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results, the last sentence states relative error of this estimate was 40.3 percent. Do you see that?
A. Yes.
Q. How does that relative error compare with relative errors that you have seen in other health reports regarding the costs of treating smoking-related diseases?
A. Is this the total estimate relative error or for a particular state?
Q. Well, this is a national estimate. So I think you can assume that it's for the entire United States, not just one particular state. Strike that. I'm not sure that's right. I better not --
A. Again, I would have to read the article and see how they calculated the relative error and everything to make some sort of judgement about that.
Q. Assuming that this relative error of 40.3 percent is, in fact, correct as to their state estimates, how does that compare with the relative errors that you have seen in other health care cost studies regarding the costs of treating smoking-related diseases?
MR. GARNICK: I'm going to object to the form.
BY MR. HAMLIN:

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Q. Let me ask you this: What other relative errors have you seen in these health care cost studies that you've reviewed?
A. Well, I've seen some relative error calculations by Vince Miller, which I believe -- I have problems with his study too, but I believe they may have been smaller.
Q. Vince Miller is an expert for --
A. I think he was in Texas.
Q. The Texas plaintiffs?
A. Yes.
Q. So you reviewed his work?
A. Right.
Q. You believe his relative errors may --
A. He made some calculation. I have yet to go into detail to determine whether he was correct or not, but I think that he may have gotten -- I disagree that the model is wrong, so the relative error of a biased model is not important, but he may have gotten some smaller numbers.
Q. Well, restrict your answer to the published scientific literature. What relative errors have you seen in the published scientific literature for health care costs to treat smoking attributable diseases?

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A. I don't think anybody as of yet have -- I mean, I don't know how many have been published that actually have done the computing necessary relative to computer error, but, again, I would have to go back and check in that form.

I mean, a lot of them would talk about the relationship between smoking and costs and whether it's significant or not, but not go into damages and then calculate as to some sort of relative error.

Q. You understand I'm asking you about the scientific literature on health care costs of smoking-related diseases, correct?

A. I can't off the top of my head recall the exact numbers or which ones actually did it for these sort of types of dollar numbers.

Q. When you say these types of dollar numbers, what do you mean?

A. Well, convert it -- you know, converted their relationship between smoking and expenditure equations into some overall estimate of, say, national Medicaid expenditures.

Q. I'm asking you about any study, any study on smoking and health care costs, not study of --

A. How could I compare two different types of things?

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Q. My question was, do you know as you sit here the relative errors that you have seen be in these other studies? I'm not asking you to compare anything. I'm just asking your knowledge about whether you recall --
A. I don't recall.
Q. -- those relative errors?
A. I don't recall.
Q. In any health care cost study that you've seen regarding smoking and smoking-related diseases?
A. Not relative to a dollar number like this. I mean --
Q. I'm asking for percentage, relative error of percentage.
A. Well, a lot of studies present significance tests which usually involves a standard error and a point estimate which you could then convert into a relative error for that estimate. Are you talking about dollar estimates or just any estimates?
Q. I'm talking about the published scientific literature on health care cost studies for smoking and disease. What I'm asking you is if you recall any relative error percentage for any of those studies.
A. Not at this time.

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Q. I mean, as you sit here today you can't recall one percentage that you've seen in all of these health care studies that you've read?
A. Not in terms of relative error.
Q. What about standard error?
A. Standard error, all I know is when you're looking at the relationship between smoking and costs, I recall things having to do with significance. The exact errors, I don't recall.
Q. What do you recall about significance?
A. Like I said, there is studies that find significance, some that don't. They kind of bounce around with respect to costs, but I can't pull any numbers off at this time without a standard error number.

MR. HAMLIN: Why don't we take a break. I'll just review my notes.

(Recess taken.)

BY MR. HAMLIN:

Q. Dr. McCall, I asked you a question about Table 8 of your report.
A. Yes.
Q. Where you ran the diminished health status model and limited it to those conditions listed epilepsy, injuries, impairment and mental problems -- do you

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Support from the Industry Documents Library: https://www.industrydocuments.ucsf.edu/docs/rrhd0001

see that?
A. Correct.
Q. And I asked you about that test, and the question was, so this is something that you created for the first time for this case, correct, and your answer was, to my knowledge. Do you remember that?
A. I think so, yeah, I remember saying something that I have never seen it before.
Q. So the answer to my question is, yes, this is something that you created for the first time for this case, right?
A. To my knowledge.
Q. When you say, "to my knowledge," is that -- that's a yes, right?
A. A yes, to my knowledge.
MR. HAMLIN: I don't have anything further. Thank you.
(Deposition concluded at approximately 3:55 p.m.)

http://legacy.library.ucsf.edu/tid/wom65a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/rrhd0001

C E R T I F I C A T E

I, NANCY K. JOHNS, RPR, hereby certify that I am qualified as a verbatim shorthand reporter; that I took in stenographic shorthand the testimony of BRIAN McCALL, Ph.D. at the time and place aforesaid; and that the foregoing transcript consisting of pages 315 through 506 is a true and correct, full and complete transcription of said shorthand notes, to the best of my ability.

Dated at Minneapolis, Minnesota, this 14th day of April, 1998.

_____

Nancy K. Johns, RPR, Notary Public
Hennepin County, Minnesota
My commission expires January 31, 2000.

http://legacy.library.ucsf.edu/tid/wom65a00/pdf
Source: http://www.tobaccodocuments.ucsf.edu/docs/rrhd0001

C E R T I F I C A T I O N

I, BRIAN P. McCALL, Ph.D, the deponent, hereby certify that I have read the foregoing transcript consisting of pages 315 through 506, and that said transcript is a true and correct, full and complete transcription of my deposition except:

BRIAN P. McCALL, Ph.D.
Deponent

Sworn and subscribed to before me this day of , 1998.

Notary Public

My commission expires:

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